Lectures on the Materia Medica

by

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Vol. I.

Lectures
on the
Materia Medica
by
John Stokes.

No. 1.

I.

Lectures on Materia medica

The Materia medica comprehends all ye Substances that are employed either in Medicine or Diet. The pharmaceutical branch has generally been esteemed the whole that belongs to this Subject, but ye Diititical is certainly comprehended with great propriety, as ye Cure of Diseases often depends as much on a proper regulation of Diet, as on a judicious administration of remedies. I shall deliver the whole of this Subject under 4 heads —

1. The knowledge of ye Subjects employed in either branch & their distinctions from all others.
2. Their Virtues & uses in Medicine or Diet
3. The foundation of their Virtues in their sensible qualities or chemical ~~qualities~~ properties.
4. Their pharmaceutical treatment or their artificial treatment for ye purpose they are intended to answer —

As to ye first Head.

The substances used are of two kinds: natural or artificial. A knowledge of ye natural substances can only be obtained from Natural history, which is perhaps of greater consequence than what is generally imagined. Had ye Antients been better natural historians, we should not now be involved in such numberless disputes about ye substances they employed in ye cure of Diseases, and to some of which they have ascribed great & cardinal Virtues.

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In this part however we shall not take up much of your time. I shall only mention ye Names that Linnaeus gives to ye different substances, ~~where~~ under which you ~~may~~ will find a List of all ye Authors that have given any accounts of the uses & Virtues of ye subject, and will therefore serve as a Key to these ~~other~~ Writers. You will by these means overcome the difficulty that arises from ye number of different Names bestowed by different Botanists on ye same subject. Whatever respects ye knowledge of artificial substances can only be acquired by frequent Inspection & accurate examination of them as they are prepared & found in the Shops. — The Virtues of ye Medicines to be treated of under ye second head, ~~as~~ as it is ye most essential will ~~make~~ take up the greatest part of this Course. ~~In describing the~~ Different methods have been pursued in ye describing ~~the Vir~~ & investigating ye Virtues of different plants. Some describe them as suited to particular Indications, others as suited to particular diseases. The first is of ye utmost utility, the last is attended with great uncertainty; for in ye same Disease Stimulants are indicated at one time, & Sedatives may be proper at another. Besides it is limited to ye few Medicines called specifick & therefore can be employed but seldom. And indeed there is no Medicine that can be employed indiscriminately in every state of a disease. So that even in ~~of~~ these ye Physician must endeavour to ascertain ye circumstances ye point out ye proper use of ye remedy. Upon this occasion it may not be improper

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to relate ye. Story of Cappivaccius, a learned Physician of Germany who acquired great fame from his supposed knowledge of secret remedies. He was much solicited to reveal them & even tempted by ye. offer of considerable rewards. But instead of availing himself of ye. Ignorance of those by whom he was ~~tempted~~ importuned he chose to undeceive them & told them that if they were possessed of his art in administering of remedies they were possessed of his secrets "si teneas methodum habebis mea secreta"; plainly thereby pointing out to them, what before had escaped their ~~notice~~ observations; that there were other circumstances to be attended to besides ye. bare knowledge of remedies — I think from what I have said it will appear to you that ye. best method is to arrange ye. Medicines according to ye. Indications they answer. This method is indeed pursued by ye. generality of Authors; but by ~~assuming~~ very specifick Indications they expose us to mistakes & deception; Linnæus has run very much into ye. fault. I shall endeavour to obviate all ye. fallacies that arise from thence, altho it may be difficult to fix upon a regular plan for these, on acc.t of ye. diff.t method pursued by authors. We have four Books that are particularly calculated to assist us in our enquiries upon this subject, and each follows a different method. — Lewis in ye. New Dispensatory & in his Materia medica has given us a Work which is very useful, but can scarcely be called a proper system of Materia medica. He follows ye. alphabetical order, by which means his subject is so broken & interrupted that it is impossible for ye. reader to follow him regularly through his book & is therefore only fit for occasional consultations —

The two first Volumes of Geoffroy are greatly preferable to the others, as those were published during his Life time, but ye. latter after his Death, by which they are faulty in many respects, wch. is generally ye. Case ~~if a~~ wch. Books published after ye. demise of yt. Author.

Geoffroy has divided ye substances as got from ye three kingdoms of Nature & in ye vegetable he again subdivides them according to ye parts of ye plant made use of, such as Roots, Barks, Herbs &c. but when he comes to treat of ye individuals, he is fallen into ye same error & is liable to ye same objections with ye Author of ye new dispensary.

Linnaeus has followed ye Botanical order in describing ye Virtues of of ye substances belonging to ye mat: med. This is preferable to the former as Plants of ye same order & Genus are found to correspond in medical Virtues. But as Linnaeus has followed his artificial arrangement of plants, the Virtues of ye several subjects he treats of are much less connected than they would have been had he followed his natural orders of plants.

Cartheuser may on several accounts be reckoned the best & least exceptionable writer on this Subject. He ranks them according to their sensible qualities, by which method he connects a number of substances that have a relation to each other, and are found to correspond in medical Virtues. But as this plan is not sufficient to carry him through he has in many places been obliged to arrange them according to ye Indications they answer in ye cure of Diseases. This is also ye method that ye celebrated Neuman followed. But there is no question but that Cartheuser's order is the most preferable as he distributes ye medicines according to ye Indications they serve & thence infers their utility in Medicine ye various Disorders. I intend to adopt this plan as ye Basis of that which I am to follow

With regard to ye present state of ye writings on ye M. M. they may chiefly be looked upon as compilations from ye antients, who in a branch depending so much on ye judgment joined with a progressive Series of facts &

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Experiments, must certainly be very deficient, and on many accounts foolish, especially as they have run into ye greatest absurdities in classing their remedies according to their cardinal Qualities; as hot or cold in ye first degree &c. Besides they lay very great stress on the Antidotes to particular Diseases, tho even at this day it seems to be very doubtful where they really have any existence in Nature. Their little knowledge is likewise very evident from their crowded compositions. Had they been properly acquainted with the Virtues of Meds. they would not have run into this fault, and Lord Bacon says very justly. Remediorum copia et varietas Ignorantiæ filia, & qui longa medicamentorum formula utetur aut dolo aut ignorantia peccat. We are exposed to another error in following ye antients, that is, we are not certain of ye particular substances described by them. Even since the restoration of letters another considerable error has crept into ye Mat: med: viz. the Doctrine of Signatures & upon this Subject Joannis Baptista Porta has afforded a whole Volume; and many substances are still retained in our shops upon no better foundation, for instance ye Orchis & Satyrion. Colour also, or some other Resemblance, has been ye Basis on which many substances have had their Virtues raised such as ye Curcuma & Crocus, which have been prescribed for the Jaundice for no other reason, but that they are yellow. Plants likewise springing up under different Constellations, were thence supposed to have particular Virtues, & some of these are still retained others continue to be received. When Chemistry appeared, however well it might be adapted to cure the reigning evil of that day, it was ye source of errors equally enormous. By its means not only many substances were added to ye Mat: med: upon grounds altogether trifling & absurd, but ye Chemists went even so far as to banish entirely all the useful

remedies made use of in ye. galenic schools, merely on account of ye. animosity that subsisted between them & ye. Galenists, & to put their own ridiculous substitutes in their room. These are the several means whereby they have enormously multiplied their M.M. but they have nothwithstanding produced a few Medicines as efficacious as their theorys were unjust & their undertaking unreasonable. At the present it would be a difficult matter to say what substances are retained from experience & what from theory; this will perhaps appear in the course of these Lectures. Et pauca vere certe melius, quam multa, sperari —

These are the errors that have arisen from a vitiated Theory; but there are not fewer, that have arisen from fallacies in Practice & observation. This appears evident if we look into practical Writers. We for ever find Cures performed by substances that we now know from undoubted proof are wholly inert, ye. crude Mercury given by Dr. Dover is a noted instance, ye. Rad. graminis by Dr. ye. celebrated Boerhave is another of ye. numerous more that might be mentioned. These fallacies in practice are often owing to very different causes. Some persons deceive & wrongly designedly & puff themselves by ye. relation of Cures which they performed with subjects, that could not possibly have any such ~~effec~~ Virtues. There are those again who deceive themselves and others by being addicted to a favourite theory, and rather than adapt their theory to facts, they obstinately pervert the facts in order to support their theorys. Another great source of error, and which should therefore caution us to pay implicit faith to ye. accounts of ye. Writers on ye. Materia medica, is, that they are frequently ignorant of ye. distinctions of Disorders. How many for instance ~~are ye~~ specifics are there recorded for ye. cure of pleurisies, and ye. Cures enumerated where they have succeeded; when on a narrow examination those Cures are found to be in reality only Colicks — In some Cases Cures

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are owing to accidental revolutions of ye. air, which notwithstanding are attributed to ye. efficacy of our remedies. These are ye. foundations of our antient Dr. Dr. All ye. writings are compilations from thence, & therefore all are subject to fallacy & uncertainty. To obviate this as far as possible I laid ~~out~~ down my third head which is the foundation of ye. Virtues in their sensible qualities or chemical properties. Sir John Floyer has attempted this, so far as ye. sensible qualities are concerned, in a Book entitled Pharmacobazanos, or ye. touch stone of medicines. The rules laid down by him are altered in many respects & greatly improved by ye. celebrated Linnaeus. But as both have a great attachment to their systems, and are very fond of reducing every thing under a few general rules, they have run into mistakes, that may however be easily rectified. They ascertain these sensible qualities from 3 different marks. 1. Colour. 2d. the Smell & the 3d. the Taste. Of these the colour is ye. most fallacious; the Smell or odour is more applicable than ye. former; but the Taste is more to be depended upon than both the others — Somewhat may also be done on this head by a chemical Analysis. Not that which is strictly so called and which has formerly been employed for this purpose by ye. R. A. of Sciences at Paris, who engaged Mr. Lemery & Mr. Boulduc to institute Expts. for this purpose at ye. expence of ye. Society. ~~These Gentlemen found out~~ By 1500 Expts. that these Gentlemen made for this purpose they discovered that nothing could be learned by this method and that it was of no service to ~~ye. cause~~ ye. advancement of Medicine to make any more. But I mean that chemical Analysis that resolves bodys into their constituent parts without destroying their texture, and it is this part of chemistry which is ye. foundation of ye. operations for separating

In my last Lecture I gave you my reasons for offering you some physiological observations, before I proceeded to treat of ye Subjects employed in ye cure of Diseases. I foresee ye ye part of my Course will ~~be~~ appear most difficult to many of you but I hope ye this will rather incite your attention, as it is of ye utmost importance to a physician to be well acquainted w.th ye animal oeconomy, & ~~by w~~ know ye changes that may ~~happen~~ be wrought on it.

the efficacious parts from ye. inert & ye. poisonous from ye. salutary.
The fourth head was ye. pharmaceutic treatment of ye. subject. Do not by this mean to teach you the Operations in pharmacy; these are inseparably connected with Chemistry. But I supposing that the principles of Chemistry & Pharmacy known, I shall only mark out ye. pharmaceutic treatment of each subject, the compositions it enters into to what ~~& the~~ propriety ~~in it~~

Of all ye. plans of a Materia medica ye. of Boerhave in his posthumous Book de Vir. Medic: appears to me to be ye least exceptionable. There are indeed several Mistakes in ye. introductory chapters of ye. performance, but these cannot be attributed to him, as ye. book was printed from some Notes of his Scholars, and these are generally erroneous. I shall in imitation of Boerhave begin w. some physiological observations; more with a View to give you my Notions to which I must adapt what I shall deliver in the course of these Lectures, than ~~that~~ I to find fault with others; and as it gives me an opportunity to explain them in order and all at once, by which I shall afterwards be ye. more readily understood, without having occasion to repeat the same things under every subject.

We then adopt this Maxim in its most extensive Sense that Medicamentum non agit in Cadaver, because the action of Med. does not depend on ye. Laws of Matter & motion, but on ye. vital principle. We must therefore enquire into these principles; but they run so much in a Circle, that it is difficult to say where we are to begin. The Circulation however seems to be ye. vital principle on w. the others depend. This leads us ~~into~~ ye to examine into ye. cause of its motion. viz. ye. heart. Some have stopt here & contented

Med. do not act merely mechanically

In my last Lecture I gave you some observations on ye an^c economy, ~~so far~~ much as is necessary to know in order to understand ye operation of med^s, & I shall now ~~also~~ recapitulate ~~into~~ ye most material matters y^t were then treated of. — I began by telling you y^t ye action of med^s cannot be accounted for on mathematical principles, as ye human body is not a merely a hydraulic machine, as has been supposed; & y^t in order to account for ye action of med^s it will be proper to enquire into ye Laws of ye nervous system. I also ~~t~~ mentioned to you y^t ~~the~~ some imagined ye soul had considerable power in directing ye operation of med^s, ~~but y^t we~~ I could not & gave you some arguments to prove y^t ye soul either had no such power, or y^t we were at least unacquainted with ~~it~~ them, & therefore could not admit of it; but y^t we were only to consider ye human body as composed of ye simple fibre, fluids & solida viva or ye moving fibre. This nervous power I said was ye foundation of Sensibility & Irritability, & therefore occurred in most parts of ye body: as in all Muscles & muscular fibres: in ye Glands & secretorys: in ye lymphatics & absorbents: & also in ye Arteriaeus System, tho Haller & others affirm ye contrary: I proved y^t ye arteries were irritable or possessed a contractile power, both from ye expts of Dr Wirschuen & by some phenomena y^t could not otherwise be accoun

themselves with considering ye body entirely as a hydraulic machine, wt. out enquiring upon what power ye contraction of ye heart depends. But this is, manifestly owing to some power inherant in its muscular fibres wh. disappear entirely soon after death. This then may be called a vital principle wh. is independant of ye fluids as ye contractile power continues after their fluids are taken away. This power is not peculiar to ye heart but common to all ye muscles & muscular or contractile membranes. This contractile power is manifestly connected wt. ye nerves for by tying or dividing a nerve distributed to a particular muscles, it entirely ceases in those muscles. All these nerves have a common origin from ye medullary substance & by this we see a manifest connection between ye brain, medulla spinalis, nerves & moving fibres. It has been much disputed how far this connection goes. There are some expts where ye brain is said to have been cut out & ye cranium stuffed wt. tow: part of ye Brain has been wasted by wounds & abscesses & ye whole observed to be ossified & in all these cases wt. out great injury to ye vital functions. None of these expts are conclusive, as we are not certain but that some part of ye medullary substance sufficient to form a common origin for all ye nerves. This common origin wh. may be called Sensor: commune is connected wt. ye Soul. Here a dispute has arisen concerning ye nature of ye soul as to its materiality or immateriality. The latter opinion is evident from observing laws in ye animal oeconomy absolutely incompatible wt. mere matter & motion. But if you chuse to have a perfect Idea of this Subject, I shall advise you to read what the learned Dr. M'Kyt of Edinburgh has wrote wrote in his treatise on ye vital & involuntary motions; where you may be better satisfied than from any thing that I know has ever been wrote on this subject. It is also of great importance for you to be well satisfied yourselves what you are to believe or reject in this matter; for it has been ye cause of a very considerable Schism in Medecine, which continues to divide this

Day, and which was first introduced by ye celebrated Dr. Stahl, who ushered it in with all ye advantages that an extensive Learning & a great Genius can ~~give~~ contribute to establish a new Doctrine. I shall mention but one particular: viz: the Association of Ideas, wch it is impossible to explain upon ye Souls materiality. There is indeed at first sight somewhat analagous to it in Strings that are tuned unison or are in harmonic proportion, for upon sounding one, ye others are brought into sympathetick motions; but then when there is no harmonic proportion, no such thing is observed; so that this analogy does not strictly extend to ye animal oeconomy, ideas being altogether arbitrarily connected e.g. two ideas, however foreign, being once connected, each will always appear on recollection of its fellow. Having now shewn that there is a Soul we now enquire into its power in the System. The notion of the Soul presiding over ye animal functions is very ancient & Plato mentions it in his Timaeus; this opinion was revived by Helmont, Wepfer, Doleus & Stahl. The latter expressly says that ye rational soul presides over & directs ye several animal functions. He is followed in this Doctrine by two british Physicians only, Dr. Nichols, in his anima medica & Dr. Porterfield shows a strong bias towards this opinion. Altho we allow the Soul to be a distinct ~~&~~ substance from ye body, yet I do not imagine that it ever acts without ye mediation of ye body, while they continue joined & we may allow the metaphysical axiom to be true that says nihil in intellectu, quod non prius fuerit in sensu; or in other words that we must see or perceive a thing, before we can have any knowledge of it. Even our reflex Senses appear modifications of our thinking part & are unavoidable consequences of ye first impressions. It is assigned as a proof of ye Souls regulating ye functions of ye body that it is impossible to demonstrate an automaton in matter.

for. I gave an instance of in blushing, wch. can only be accounted for by allowing ye. ye. Circulation is ~~[illegible]~~ quicker in ye. face; & this can only be owing to ye more frequent contraction of ye. arteries in ye. particular part.

With regard to ye. simple fibre I told you ye. Physicians in general paid great to ye. State of them, wch. respect to their Laxity & rigidity; but that I imagined ye. there we could seldom bring on any sudden changes, & ye they encreased in firmness as ye. person advanced in age. And ye. if we could bring on any change it must rather be ascribed to an alteration previously induced on ye. vital moving fibre. And ye. we should in general direct our Meds. to ye. nervous power, & ye. diseases for ye. most part owe their origin to it.

I next told you ye. if ye. secreted fluids suffered any change in their augmentation, diminution & acrimony, we should not always conclude from thence, ye. it was owing to ye. blood, for ye. it was oftener owing to a change in ye. organs of secretion. ——

I then spoke of ye. Sympathy ye. one part of ye. body has with another, but ye. stomach in particular, as we must pay great regard to it in accounting for ye. operation of meds. I told you ye. nothing affected ye. mind so much, as ye. state of ye. stomach, & vice versa, ye. ye. Fo=

that is appears to be very probable, that if all ye impressions were taken off from our external senses the motions of ye body would soon cease; for if a person is put into a dark place free from noise, he will incline to sleep, tho he was not sleepy at the time. Others in order to prove that ye sentient principle does preside & govern ye body have recourse to ye voluntary motions, or such as are allowed by every person to depend on changes in the intellectual system, for example if I apply my thumb & forefinger together to hold a pinch of snuff, this is said to be a voluntary motion, but strictly speaking it is not so, for ye Will is not employed to bring certain muscles into action, but to produce ye effect of their action: viz: the application of ye finger to ye thumb. The erection of ye penis from certain ideas, or turgescence of ye seminal ~~vesicle~~ vesicles, &c. many others, may be adduced as instances of ye same kind. The intellectual ~~system~~ principle has a very extensive influence over ye system, but in no one instance is it rational or arbitrary. But let us see how Stahl & his followers talk. They say that a fever is a commotion excited in ye body, by ye soul perceiving somewhat noxious in ye body & endeavouring to expel it. Others assert that ye fever is brought on by the very nature of ye animal oeconomy, from particular causes. From these & other circumstances we may conclude that all our functions are governed by certain Laws, which we may observe & mark distinctly, so as to know their consequences, and that ye consideration of ye soul in a medical View is of no use; and I agree with Boerhave who says in his Institutions that when a problem is traced up to ye connection between Soul & body, we ought to stop there & consider it as resolved.

mach was peculiarly affected by y. state of y. mind. This is evident by hochondriac people, whose disease being chiefly seated in y. Stomach, has often grievous effects on y. mind or sens: comune. In Wounds of y. head there is often a porraceous Vomiting of bile, wh. can only be ascribed to y. Sympathy or comun. between y. Stomach & Liver. The Stomach has also a considerable Sympathy w. y. Heart & Lungs. Palpitations of y. heart are very common in hysteric & hypochondriac persons, & are speedily removed by remedies y. will strengthen & settle y. Stomach. Persons subject to y. Asthma will often get a fit from y. slightest errors in diet or from Winds distending y. Stomach. Convulsions of y. Diaphragm are often induced from slight irritations of y. Cardia. The Stomach sympathizes also very much with y. extremities. This is very evident in those persons y. are subject to y. Gout, as nothing is more common than a transition of y. Gout from y. feet to y. Stom. & vice versa. Cold & heat also applied to y. ~~Stomach~~ extremities affect y. Stomach; and lastly y. Stomach is connected or sympathizes w. y. whole surface of y. body & seemingly w. y. extreme Vessels in every part of y. body. This is proved by many undoubted facts: for instance no sooner do some persons take particular aliments, than spots & efflorescencies appear on y. Skin. Vomiting & diarrhoea arising from constrictions of y. cutaneous pores are noted Instances of y. same thing, & are speedily cured by restoring y. perspiration through y. Skin

But it is time to return from this digression to ye. Sensorium commune ye. consideration of wh. we left, in order to consider ye. Souls existence & its power in a medical view. The communication between this common origin of ye. nerves & sensible & moving fibres, seems to be kept up by something passing along ye. Nerves in ye. case of sensation, from ye. extremity to ye. Sens: comm: & in case of motion from ye. latter to ye. former. This nervous power seems diff.t fm every thing else in our body, but not peculiar to it, but a general principle in nature particularly modified in our system. This may be easily understood from ye. nature of magnetism & electricity. It is scarce probable that a watery fluid, secreted by ye. nerves, is capable of performing ye. actions of ye. body. tho it is not to be doubted but that ye. brain does secrete a fluid of considerable use in ye. economy. This opinion of a general ~~opinion~~ principle operating on our system by means of ye. nerves, is strengthened & confirmed by what we observe in ye. veg: king: all plants being in some degree sensible & irritable. These principles in ye. Veg: economy are equally difficult of solution wh. those in ye. animal & seem to depend on ye. same principle. We have now shewn that in ye. fibres of animal bodies there is a sensibility & irritability on wh. ye. motion of ye. fluids depend. This vital power is intimately connected wh. ye. Sens: com: & thro wh. ye. Soul; and in so far it may be of use to consider ye. soul in a medical system, but by no means as a rational conductor. The Soul influences ye. ~~system~~ body, not as a prime mover, but as a modifier of ye. external senses. — We shall now examine the extent of ye. nervous power in ye. System. It is observable in ye. muscles of voluntary motion, & wherever muscular fibres are found in ye. alimentary canal, in ye. bronchia & lungs, in ye. heart & excretories, wh. last are both sensible & irritable. It is not so obvious in ye. glands & secretory, tho it probably also takes place there in some degree. It appears in ye. whole course of ye. absorbent & lymphatic systems, wh. are both irritable & sensible. But it is a question that has been much agitated of late whether ~~it~~ it extends to ye. Arteries? Haller and others say it does not & in proof of their assertion they allege: That ye. arteries are neither sensible nor irritable, that their coats are tendinous & not muscular, and

I next told you y. y. operation of med. depended greatly on y. tempt. of y. patient. I do not here take y. word tempt. in y. mean y. many ~~of you perhaps~~ do, who confine it to y. mind or disposition of y. person. The mind is here entirely out of y. question, except in so far as it depends on y. peculiar habit of y. body, & therefore by Temperament I would be understood to mean y. habit of body. But in order to your understanding y. temperaments, I told you it was necessary that you should be acquainted w. y. principles on w. y. diversity of tempt. or habit depends. I then told you that they might be reduced under 5 heads: The 1st. The state of y. simple solids: 2. The proportion of y. fluids to y. solids: 3. The state of y. fluids. 4. The distribution of y. fluids or y. particular determination to this or that part of y. system. 5. The state of y. nervous power. I then considered y. what influence y. state of y. simple solid could have on y. System, or how far Diseases might be ascribed to its state. On this head I told you that y. state of y. simple fibre related to its laxity or rigidity. That ~~under Laxity~~ a lax fibre implied flaccidity & debility, & a rigid fibre was a sign of elasticity & strength. I observed that y. state of y. simple fibre ~~was~~ varied accord. to y. age of y. person, & that it grew more rigid as y. person advanced in age; but y. nevertheless something was owing to y. first formation, & y. some persons by nature were of a more rigid simple fibre than others. ~~I told you~~ said

that their contracting on ye application of ~~mineral~~ chemical acids is no fair expt.
even dead fibres will crisp on those occasions. In answer to this
the favourers of this opinion say; that if ye arteries were only elastic
the circulation of ye fluids must be owing to ye heart alone, as no
more force can be returned by an elastic substance than what is re-
ceived, and that a partial encrease of circulation, such as blushing
cannot be deduced from this cause. For if this phenomenon were
owing to ye heart, it must be equally dispersed over ye whole
body; if to ye respiration, over ye whole superior part. Haller
endeavoured to account for blushing from ye plexus of nerves ob-
served round ye arteries; but in his 2d Vol. of ye El. Physo. he
has confessed that ye nerves have no contractility & gives up
the question. This being given up there appears no other method
~~for~~ to account for blushing than that ye nervous power does extend
to ye arteries; ~~and~~ besides it appears that such a thing does take
place in morbid ~~appearances~~ phenomena. In ye rheumatism for in-
stance it is no uncommon thing to find ye arteries near ye part
lesser than any where else & in a hemiplegia ye pulse is often
weakest on ye affected side. As to ye objection that ye coat of ye arteries
called muscular is tendinous & not muscular, Anatomists do allege
there is no muscular appearance in ye larger arteries; but it is probable that ye coat here is only
more lax and ye by analogy we may infer a muscular action in
ye larger arteries as well as in ye aorta altho they have a tendinous appearance. This opinion
is ye more probable as by age ye tendinous encrease over ye muscular fibres.
And indeed ye contractility of ye arteries is almost placed beyond
a doubt by Dr. Varschuen in his inaugural Dissertation where
he shows by many very accurate expts made on ye crural
artery of a Dog wi. ye a very sharp pointed Lancet, that he could
observe a manifest contraction of ye artery on irritating it wi.
ye point of ye Lancet. We prove ye contractility of ye operatories

that Physicians universally take y. mark of y. simple solids from y. colour & other variations in y. hair. That pale coloured, soft & thin head of hair were signs of laxity, and y. black in all its shades, curling & copious hair was a sign of rigidity. I proved this by what we observe in Children, whose hair grows darker & stronger as they advance in years & strength. The mark of distinguishing y. nature of y. simple fibre is taken from y. softness & hardness of y. fleshy parts. When y. body is brown & fleshy, y. muscles & tendons distinctly marked, we conclude that there is a rigidity of y. simple fibre w. a considerable degree of strength; & on y. contrary a succulent & soft habit of body implies Laxity of y. simple fibre —

The second head was. The proportion between fluid & solid. An overproportion of y. fluid to y. solid parts is called plethora & it is necessary y. we should well distinguish between plethora & obesity or fatness & corpulency. By plethora is meant an overproportion of fluids circulating in y. Vessels & this we judge ~~know~~ to be y. case where there is a very ruddy & florid colour w. a fulness & distension of y. Veins. In obesity or fatness there is also an overproportion of fluids ~~but these~~ w. do not circulate through y. body, but lie w. out y. Laws of circulation. Hence plethora generally causes obesity, for if there is a greater quantity of fluid secreted than is discharged from y. body, it will press upon y. Vessels & cause ~~plethora~~ corpulency —

y. Glands by observing that few excretions, if we except sweating, are ~~produced~~ promoted by an increased action of y. heart, although they are by irritation of y. excretories. Another proof is that by irritating part w. has a great sympathy w. y. gland, or y. excretion, e.g. by harsh sounds & grating of y. teeth y. flow of y. Saliva is promoted; anger, contusions & fractures occasion an evacuation of y. bile. If y. secretory & excretory organs are liable to be thus affected, the fluid secreted will of consequence be thereby ~~affected~~ altered, and this alteration should be imputed to y. state of y. secretory organ, and not to y. nature of y. fluid fm which it is secreted. And for this reason the Laws of y. nervous power should be studied w. y. most attention; but I shall treat more particularly of this when I come to speak of Sedative & Stimulant Medy. I shall at present content myself with making some general application of what has been said. In y. common & general Systems of Physick great stress seems to be laid on y. Laxity & rigidity of y. simple solid fibres. Although these properties are not to be disregarded altogether; yet I imagine there are few instances of any sudden changes in y. simple fibre; but they seem to increase uniformly in firmness as y. person is advanced in age; and I have as little of any disease in old people depending on laxity. I believe that it is in general little in our power to change this laxity or rigidity, and that if any change does happen, it should rather be imputed to an alteration in y. vital moving fibre. Applications of Medy. ought therefore to be directed to this nervous power, & diseases for y. most part deduced from it.

Since y. circulation of y. blood has been discovered, Physicians have applied themselves almost solely to consider our system or body as a mechanical hydraulic machine. Every body now knows of how little

X. I shall just give you one instance of this, and wch will show you ~~into~~ what absurdities even great men will do sometimes fall into. Heuham in his treatise of fevers ~~accounts~~ in giving ~~among~~ the reason of symptoms, amongst ye rest accounts for ye pale urine wch is often a fatal sign in those distempers. He says that it is owing to a separation of ye Serum from ye red Globules & coagulable Lymph in ye body, & therefore advises ye acid & saponaceous ~~Drinks~~ Substances should be mixed with ~~dr~~ ye drinks, ye they may ~~be~~ more readily ~~mixed~~ unite wch ye circulating fluids. But if you will only reflect one moment how impossible it is that such a separation can take place especially after ye blood has once circulated through ye Lungs, you must immediately see ye fallacy & absurdity of reasoning, tho ye use of acid drinks is very proper on a quite diff. principle. But if you attribute it to a spasmodic constriction of ye secretory in ye Kidneys, you will not only be able properly to account for ye symptom, but also why it is generally a fatal sign.

XX. What for instance is more common than a palpitation of ye heart in ye hysteric & hypochondric diseases, wch is instantaneously removed by a Glass of Wine, Rum or any other remedy ye will take off ye irritability of ye stomach. Indigestion or distension of ye stomach by Winds will generally bring on a fit of ye Asthma in those ye are subject to it, & whatever takes off those causes, will remove ye paroxysm.

antage the minute Calculations of Pitcarne, Borelli & others have
e. Some pretty ones indeed have been given for general possible
ses, scarcely any for a particular practicall one. The reason
ed is evident; because the power of y. system is variable &
anged by y. least accident. The augmentation, diminution
eriminy of y. secretions have been commonly ascribed to y.
ferent state of y. blood, and urine for instance has been too
considered to be an evidence of y. state of y. blood, whereas
general all these appearances should for y. most part be ascribed
y. secretory organs. ✠

Bef formerly mentioned that y. sensible & moving fibres had a connec,
n to y. Sens: com: & I have now to add that they are also connected
each other. This Sympathy is more remarkable in some parts than
others. It would be very proper to establish these consents; which have
yet been fully enumerated. Of these some are general or in common
all persons; others are particular or peculiar to one or more
ersons & are then called Idiosyncrasy. It would be out of my
ovince to enter into this matter, I shall therefore confine myself
y. one which has an immediate connection to my subject, viz: the
omach, a particular regard is to be paid to it in accounting
or y. operation of Med:. Nothing affects y. mind ~~so much~~ more than y.
tate of y. Stom; & nothing draws y. Stomach more into Sympathy
an affs of y. mind. This is evident in hypoch: people; whose
isease being seated chiefly in y. stomach, hav often grievous effects
y. Sensor: comm: or y. seat of this, the head. This is farther illustra,
by Wounds of y. Head. Does not in these, y. porraceous vomiting
f bile proceed from consent between y. Stomach & Liver. 2dly The
Stomach has a considerable connection to y. Viscera in y. Thorax
by tracting & independant from its contiguity & distension. In
spoch: Cases y. heart & Lungs are often grariously affected by y. Stom:
Convulsions of y. Diaphragm are often occasioned by slight irritations of y.
Pancria. Many other morbid Symptoms might be adduced in proof of y.
same thing were it necessary —

* I have known persons subject to ye Gout whose pulse would beat 140 in a Minute on a retropulsion of it to ye Stomach, upon taking a Glass of Brandy force it to ye extremities & lower ye pulse immediately to ye natural State.

Q. and what is more common than a Diarrhoea arising from sudden exposition to cold, & being cured by restoring ye natural perspiration to ye skin * by diaphoretics.

The Stomach is connected w.th y.e abdominal Viscera & 1st w.th y.e Intestines
2d w.th y.e other contiguous as well as more distant organs. 4th. This
Viscus is connected w.th y.e extremities. Every person subject to y.e Gout
must often have experienced this; as nothing is more common than a
transition of y.e Gout from y.e feet to y.e Stom: & vice versa. Also Cold
feet applied to y.e extremities affect y.e Stomach. 5th It is connected w.th
whole surface of y.e body & seemingly w.th y.e extreme Vessels every
where. This is demonstrated by many observations. e.g. no sooner do
some aliments reach y.e Stomach of particular persons, than spots
& Efflorescences are occasioned on y.e Skin. Van Swieten gives
such an instance from Crabs Eyes. I have heard of a person labouring
under y.e mal: Hypochond: who is instantaneously relieved of his complaints by pimples
appearing between his thumb & finger, & as immediately oppressed
on their retropulsion or disappearing. Vomiting from constriction
of y.e cutaneous pores is another Instance of such sympathy. Such
symptoms are therefore falsely ascribed to acrimony, & in general
we conclude y.t y.e Stomach has a very general consent w.th y.e whole
system

The operation of Med.s depends somewhat on their own nature, but
more much on y.e particular modification of y.e system to w.ch they are
applyed. Instead therefore of taking up your time in examining the
diff.t figure of y.e particles of med.s, their sharpness, oliness &c it
will be more useful to say somewhat on Temperaments

Temperament is y.e general State of y.e system, Idiosincrasy y.e
peculiar state of a particular part. The Variety of temperaments
is prodigious. The Antients have confined them to 4 & we
though a blind attachment to antiquity have made few farther
advancements in this distinction. It would be difficult to enumer-
ate all y.e diff.t temperaments. I shall therefore rather consider y.e
several particulars in y.e system that are apt to be varied in diff.t
constitutions, & whose variety constitute diversity of temperament. These
particulars may be reduced under 5 heads. 1st The state of y.e simple solids
2. The proportion of y.e fluids to y.e solids. 3. The state of y.e fluids. 4. The distribution of
y.e fluids i.e. of particular determination to y.e or y.e part of y.e System.
5. The state of y.e nervous power

The 3rd head was: The state of y. fluids. The Antients & ~~some~~ mod. Physicians at y. time deduced many diseases from y. state of y. blood; but I think it might be entirely disregarded as y. state of y. fluids must depend on y. state of y. solids. The blood you know consists of red globules, coagulable Lymph & Serum, w. last is Water impregnated w. a saline principle. I doubt not but these may ~~be in~~ varied in their proportions by y. nature of y. Aliment or disease. But the knowledge of this can be of no use to us, untill we are better acquainted w. y. nature of y. proportions & y. proper method of knowing & investigating them: e.g. The proportion of y. red globules cannot be determined by y. colour of y. blood, as this does not depend on their quantity but on y. state of y. division. ~~The~~ Again: we cannot judge of y. quantity of coagulable Lymph in y. blood by its consistence, as this is varied by many accidents: for instance, by Ligatures, exercise, bearing & diseases. Density is more certain than any of y. former marks; tho it is not altogether beyond doubt: for tho y. blood is always denser in old than in young and yet the density may be various in animals of y. same age, from y. diff. proportions of saline matter pres. in y.

The 4th head was: The distribution of y. fluids. This differs in y. same person according to his age, & is y. cause of many diseases incident to ~~peculiar~~ certain periods of life. The brain first arrives at its natural size than any other part of y. body; & y.

lo to y. state of simple solids viz. their Laxity or rigidity. Under y. first is comprehended flaccidity, debility, under y. last elasticity, strength. It may be doubted whether these should be taken in here, as they are variable in every person, and through the whole course of life; growing gradually fm lax to rigid, as age increases, & therefore might be supposed not to affect temperaments. Something however depends upon y. primitive stamina in y. formation of Temperaments. for if we take two Children born at y. same instant of time, & bring them up exactly under y. same management, they will nevertheless differ very considerably as to y. state of y. simple fibres. —

Physicians have universally taken their mark of y. simple solids from y. colour & other variations in y. hair. In case of laxity the hair is soft & in small quantity. In case of rigidity it is copious & liable to crispature & curling. The paler colours are in general an indication of laxity, as y. black in all its shades is an evidence of rigidity. Thus in Children y. hair is generally soft & pale and y by age gains hardness & a darker colour. Another mark of distinguishing y. nature of y. simple fibre is taken fm y. softness & hardness of y. fleshy parts. When y. body is torose, fleshy & y. Muscles & tendons distinctly marked & along w. this a considerable strength of system we infer a rigidity of y. simple fibres w. a considerable exertion of y. nervous powers; and on y. contrary Succulency must for these reasons be a symptom of Laxity.

2.

The proportion between solid & fluid. There has been nothing so much talked of as plethora, & yet it has generally been confounded w. obesity & corpulency. There is however a manifest difference, tho difficultly distinguished by particular marks, & still there is often a connection between them. Plethora implies a greater quantity of fluids circulating in y. vessels, distinguishable by ruddiness of colour & a number of Veins distended over y. body. In obesity y. greater proportion of fluids lies about y. laws of circulation. Hence plethora may cause obesity, for if in a plethora a greater quantity be secreted than is discharged from y. body, it will press upon y. vessels & cause obesity —

The State of y. fluids. These might I think with great propriety be disregarded as y. depend on y. state of y. solids. But we must not disregard what y. Antients have assigned as y. cause of y. different temperaments, w. they made to depend on four different humours. This doctrine however of y. Antients is now almost entirely neglected. The Chemists have delivered nothing clear or pleasing on y. head fm y. diff. proportions of oil, earth & salt in y. blood. They have even added Iron, as this is found in all human blood. But we are now aware of other principles viz. red globules, coagulable Lymph & serosity, w. last is Water impregnated w. a saline principle. That I make no

of a fœtus makes 1/5 of ye. whole body; whereas in an adult or grown person it does not exceed 1/9 & pretty 1/10 part of ye. body. After birth ye. circulation through ye. navel is stopped & then a new determination is given to ye. circulating fluids, by wch. ye. growth of ye. inferior extremities is promoted. This determination of ye. fluids accounts for ye. hæmorrhages yt. happen at diffr. periods of life eg. bleeding at ye. nose in young persons. Again: if a tall person has ye. hands & feet proportioned to his height, he is for ye. circumstance subject to diseases & I gave you an instance of a person who died of a consumption, wch. no other cause appeared, but this disproportion. I also gave you an acct. of ye. diffr. changes yt. happen in ye. arterious & venous System of Vessels, & ye. Diseases that Man is liable to on ye. acct. I told you in young people ye. arterious plethora takes place, wch. acts for ye. Inflamations, hæmorrhages & other diseases incident to youth. In old people ye. venous plethora prevails, hence hæmorrhoids, Infarctions of ye. Liver, Spleen &c. are peculiar almost to this age. It may perhaps not be improper here to mention to you that ye. you will find an accurate attention to this to be of great consequence to you in your future practice, & that you should therefore be at some pains to make yourselves acquainted wch. ye. diseases yt. are incident to certain ages & ye. causes of those Diseases. I can in this place only give you ye. outlines of ye. subject & so far as is necessary to make you afterwards understand me better when I come to treat of ye. operation of med.

doubt are in different proportions fm ye. nature of ye. aliment or diseases. But I do not know to make use of this, at least untill we be more fully acquainted w. ye. nature of these portions & ye. proper methods of distinguishing them w. are at present very inaccurate & imperfect, e.g. The proportion of red globules is not to be distinguished, as their less or greater florid colour, does not depend on their quantity, but on ye. state of diffusion. Again the proportion of coagulable Lymph is not even evident from consistence, as in persons where there is ye. same quantity of Serum, ye. consistence is different. Ligature on ye. Vessels, childbearing &c. cause a different degree of separation of coagulable Lymph &c. so that no person can make an accurate judgment from ye. appearance of ye. blood. Density is a more certain mark, the blood is denser in proportion to ye. rigidity of ye. Vessels, & in ye. same species, in proportion to ye. age e.g. It is more dense in Cows than in Calves. The quantity of saline matter may also affect ye. density of ye. blood, & therefore we cannot positively determine whether ye. fluidity of ye. blood in particular cases be owing entirely to ye. pure watery part, as ye. saline principle may contribute considerably towards ye. production of ye. quality ——

Distribution of ye. Fluids. This is different in ye. same person according to his age, owing to a difference in ye. structure & distribution of ye. Vessels. It seems to be necessary ye. ye. brain should be brought to its size quickly: hence ye. head in a fœtus is much greater in proportion to ye. other parts, & then constitutes 1/5 of ye. whole, whereas in an adult it does not exceed 1/8 & freqly 1/10 only. After birth a new determination is given to circulating fluids. the circulation being stopped in ye. umbilical Vessels is determined to ye. Heart, & hence ye. growth afterwards of ye. lower extremities is more remarkable. This accounts for ye. hæmorrhages that happen in diff. parts of ye. body, at diff. periods of life e.g. bleeding in ye. nose in young persons; again if a tall person have not hands & feet in proportion to ye. length of his body, he is liable to diseases. Thus a person was known to have a Phthisis pulmonalis, of which this disproportion was ye. most probable cause. Hence if we could exactly ascertain ye. proportions of ye. human body, we might form a notion how diseases might arise according to ye. various deviations from it. We shall now take notice of ye. diff. distribution into ye. arteries & venous systems. The arteries are larger ~~than~~ in proportion to ye. veins in ye. young than in ye. old subjects. Winringham pur. finds ye. density of ye. coats of arteries less in young than in old people

Another principal cause of diseases arising from ye determination of fluids is owing to ye ~~capacity~~ proportion ye Lungs bear to other parts of ye System. For as ye same quantity of blood passes through ye Lungs in a given time, as through ye whole body, an overpro portion of fluids must be very sensibly felt there & this is ye reason why narrow chested people are subject to consumptions & other diseases in ye Lungs; & also accts for ye use of bleeding & other evacuations in ye cure of disease — The 5th & last head wch I laid down was ye diffl state of ye nervous power, wch regard to its sensibility, irritability ~~& strength~~ mobility & strength. It is on the nervous power that we can ~~stay~~ make great sudden changes by ye help of Medc. I said before ye medc given wch an intention to change ye state of ye simple fibre & fluids must be very slow in their operation. I shall now only add ye it is highly probably that our medc are of service in proportion to ye action they have on our stomach, wch I told you before had a very great sympathy with all ye moving fibres of our body & consequently must affect these considerably — I also advised you in my last Lecture to consult what Haller & Whytt had said on ye subject of ye nervous power, & therefore think ye a recapitulation of ye part is at present superfluous. I therefore now go on to observe that ye action of medc is also considerably affected by Idiosyncracy

The arteries therefore from being larger grow more rigid, & are larger as they are nearer y. heart. And this is wisely ordained so, for y. arteries being more exposed to the action of y. heart & y. fluids in y. removing from a greater to a less diameter, are sooner rendered rigid than veins, in w. y. power of y. heart is weaker, & y. fluids move in a contrary manner. Hence in young persons the arteries, in old y. venous plethora, a distinction commonly unobserved, tho it gives a considerable difference in point of temperament. Arterious plethitude is distinguished by y. florid complexion, y. venous by a distension of veins & paleness of y. body. This change of plethitude is gradually taking place in all people; tho y. degree of it is considerably varied in different persons.

We consider here very properly y. proportional capacity & force of y. heart, in regard to y. system at different times of life, as also y. proportion of y. lungs to y. rest of y. body: for as y. same quantity of fluids in a given time, passes through them, as through y. whole body, any large proportion of fluids in y. system must of necessity be very sensibly felt there, & consequently have an effect in y. production of temperament. Thus narrow chested people are ~~much~~ more subject than others to hæmoptoe & congestion in y. lungs.

5

Different state of y. nervous power with regard to its sensibility, irritability mobility & strength. By Sensibility is meant y. different force of impression necessary to move diff. persons: by irritability y. extent of sensation e.g. two persons on taking y. same dose of an emetic will be very differently affected, y. one vomiting easily, w.out any farther extent of y. impression, y. other being pretty generally convulsed over y. whole system. Of y. difference of sensibility we are able to judge but grossly, as it does not depend entirely on y. degree of force impressed, but is greatly improveable by custom & practice e.g. there may be two persons equally sensible to y. slightest impressions of any sapid body on y. tongue, & yet y. one may be able only to distinguish green tea from bohea in infusion while y. other cannot only tell, when a number of diff. species of y. same kind of Tea are employed in infusion, but also y. different proportion in w. y. teas are employed. The same thing may be

illustrated by individual [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

illustrated by musical tones. Thus one person may be sensible to as soft an impression of sound as another, but unless conversant in music, he will not be able to distinguish a variety of tones. Irritability must absolutely be connected with sensibility, as being both excited from ye same cause; ye one making us sensible of ye simple impression, ye other propagating ye sensation over ye body. Irritability is often connected wt weakness of ye nervous power, more remarkably wt its strength. Independant of ye nervous power irritability is also varied in proportion to greater or less tension of ye moving fibres: the more accurately therefore ye vessels are filled, ye fibres will be more stretched & ye irritability greater. Another particular in wh there may be a difference of ye nervous power is in mobility or celerity wt wh actions are excited. This may be different, even when ye sensibility & irritability are ye same, ~~as mobility~~ though it is generally connected wt them, as mobility is greater in more sensible & irritable systems. Another variation of ye nervous power is ye duration of impressions. In some the effects of impression are transitory, & therefore ye body is left open to new. This is called levity. In others these effects are longer of duration, & ye motions excited are more steady. Lastly ye nervous power differs in point of strength. Some have supposed this to depend entirely on ye state of ye simple fibres, & indeed I allow ye it is often connected wt it. But most of ye changes of debility & strength are owing to changes in ye nervous power. Thus at ye invasion of fevers where we cannot suppose any change in ye state of ye simple ~~solid~~ fibres, we often see remarkable debility in ~~ye discharge of~~ proportion ye functions, connected also wt an increased irritability. Again in maniac persons there is often an incredible degree of strength exerted, wh we cannot possibly conceive to proceed from rigidity of simple fibres so suddenly produced. This strength of nervous power is opposed to sensibility as appears from a much stronger dose of any medicine being required to produce ye same effects on ye ~~abovem~~ such a maniac, than on other persons. In any opinion it is also opposed to irritability, tho not so remarkably, for weakly systems are ceteris paribus more irritable. Strength of nervous power is also opposed to mobility, for in ye more weakly, ye impressions are ~~the more~~ transitory, whereas in strong people ye contrary takes place.

Having ~~now~~ thus enumerated ye diff. causes of temperament, we shall now consider how these causes are variously combined in order to form diff. temperaments. Of particular temperaments, those are, 1st most strongly marked, wch are owing to ye diff. stages of Life. As changes in ye system take place very gradually it were proper to assume a middle point to & from wch ye system is gradually advancing or declining, & at ye same time to mark ye different gradation of decline & advance, but as this would be very difficult, I shall only point out ye matter grosly, & mark those stages, where ye most remarkable changes occur. These may be reduced to 4, Infancy, Youth, Manhood & old age. To begin wch these therefore in their order. In infancy occur remarkably lax solids, large proportion of fluids, wch are watery & bland; large proportion of blood in respect to cellular substance: head & heart large in proportion to ye system: arteries numerous & large in respect of ye veins: the secretory glands have not yet attained their full bulk, while ye conglobate or lymphatick are larger than at any other time of life. In ye nervous system there is exquisite sensibility wch out accuracy of perception: remarkable irritability wch weakness, great mobility ye foundation of a great deal of levity. In general ye nervous system is strong wch respect to ye present time of life, but weaker than in a more advanced period. —

2. Let us now consider youth approaching near to ye ahpn. Rigidity & strength are now greater, but still wch respect to ye middle point laxity prevails: a less proportion of fluids wch respect to ye vessels, but still prevailing humidity; increased cellular substance on wch ye growth of ye body chiefly depends till ye ahpn & long after: the heart is less in proportion to ye system than formerly & more in a ballance wch it: the arteries are diminished in some measure wch respect to ye veins; but still exceed them. ~~The~~ All ye viscera are larger, but particularly ye lungs & as ye vessels are more rigid, consequently a greater determination of fluids to ye organ, wch explains ye diseases incident to ye stage

of Life, hemoptoïs, peripneumony &c. The same sensibility & irritability continue perhaps as before, but ye. former is more accurate for ye. tension of ye. Vessels, & consequently ye. fibres; the latter encreased & hence irascibility more frequently appears at this period. There is also a great mobility but much less Levity.

3ly. We come to examine the state of Manhood.

It is difficult to fix this period, diff.t persons attaining ye. ab.ce at diff.t times. I would take ye. 35th year for a Standard. The solids are now tending to excess of rigidity co. respect to ye. middle point: the fluids are less in proportion to ye. solids; hence dryness begins to take place. The heart is smaller co. respect to ye. Arter: & exerts less force ye. formerly: hence slow circulation, more copious secretion & obesity co. conseq.t succulency. Hitherto little change has happened in ye. State of ye. fluids; but now they begin to tend towards acrimony. The arteries now become less & ye. balance is turned to ye. side of ye. Veins. Secretory glands are now encreased while ye. lymphatic Vessels are diminished, & ye. conglobate Glands: Sensibility, Irritability, Mobility & conseq.tly Celerity & Levity gradually diminish for this time. Till ye. period ye. Strength has been gradually encreasing; but is now at its height & afterwards decays chiefly on acc.t of rigidity of every part of ye. system. In infants ye. muscles consist of truly muscular fibres co. very little tendon; but now ye. tendinous exceed ye. muscular parts & in proportion perhaps ye. force is diminished. This state of manhood is very variable as to its period; happening in some sooner in others later; but for this to 50 ye. changes are less remarkable ye. at any other period of Life.

4thly

Old Age

We cannot exactly point out ye. time of its coming on, but when it does appear rigidity is in excess: dryness proceeding for ye. small proportion of fluids both in ye. circulatory Vessels & cellular membrane. Acrimony of ye. fluids is in excess, perhaps to compensate for ye. want of fluidity in ye. blood by diminishing its cohesion. Instead of an arterious, a venous plethora

obtains. The lymphatic system almost disappears. Both from ye weakness of ye nervous powers & rigidity of ye simple solids, sensibility, irritability, Mobility, formerly so remarkable, are now greatly diminished. Thus have we pretty well distinguished ye 4 grand Ages of Life, by ye changes wch are observed to take place in ye system. These diffl changes do not happen so uniformly but some peculiarities are remarkable through ye whole of life. Thus each sex is distinguished. In ye female there is greater laxity wch humidity & thinness of ye fluids; arterious plethora, more sensibility, irritability, levity & weakness, so ye in them ye character of youth continues longer than in ye male. In every person too there are appearances of a temperament peculiar to himself, tho ye ancients only took notice of 4. Some have imagined these were deduced from ye theories of ye 4 humors or 4 cardinal qualities: but it is more probable ye they were first founded on observation & afterwards adapted to these theories, since we find ye they have a real existence & are applicable on ye doctrine already delivered. The two ye are most distinctly marked are ye sanguineous & melancholic viz. ye temperam: of Youth & Age.

Sanguineous

Here there is laxity of solids discoverable by ye softness of hair & succulency; large system of arteries; redundancy of fluids; florid complexion; sensibility of ye nervous ~~system~~ power, especially to pleasing objects, irritability from ye plethora mobility & levity from lax solids. These characters are distinctly marked as they are proved by ye diseases incident to females in youth.

Melancholic habit

Here greater rigidity of solids discoverable by ye hardness & crispature of ye hair; small proportion of fluids: hence dryness & leanness; smaller arteries, hence pale colour; obnoxious plethora hence turgescency of them & lividity; sensibility freqtly exquisite; but wch great accuracy: Moderate irritability wch remarkable tenacity of impression; steadiness in action & wch slowness of motion wch great strength; for excess of ye constitution in maniacs gives ye most extraordinary instance of human strength ye I know of. This temp. is most distinctly marked in old age in males. The sanguine

& temp.t of youth make ye. reason we do not distinguish ye. melancholic till ye. decline of life, when it is very evid.t fm diseases (of ye. Veins) as hæmorrhoids apoplexy, morbi nig: Cephery; affects of ye. Liver, Dropsies, affects of ye. alimentary Canal, chiefly fm slower & weaker influence of ye. nervous power. So much for ye. sanguin.t & melanchol. temp.t The other 2 are not so easily explained The chol: temp.t takes place between youth & manhood In the

Cholric the distribut: of ye. fluids is more exactly ballanced; there is less sens: ib. & less obesity, wh. more irritab: proceeding fm greater tension; less mobil: & levity & more steadiness in ye. strength of ye. nervous power. As to ye. or

Phlegmatic. This temp.t cannot be distinguished by any characters of age & sex. It agrees wh. ye. sanguin: in laxity & mucculency. It differs fm ye. temp.t & ye. melanch: by ye. more exact distribution of ye. fluids. Again it differs fm ye. sanguin. by having less sensib: irritab: mobil: & perhaps strength; tho sometimes indeed ye. last is found to be great

These are ye. ancient temp.ts wh. we have brought in as Instances of ye. combinations wh. might take place. The temp.ts indeed are much more various & very far fm being easily marked & reduced to ye. genera & species, not only on acc.t of variety of temp.ts but also on acc.t of Idiosyncracy. The whole of this subject might be prettily illustrated by considering ye. difference of genius &c. & even morals to wh. ye. diff. temp.ts are liable, but as ye. disquisition is very subtile & does not properly belong to ye. place I shall wave it on ye. occasion. To conclude: These circumstances wh. we have observed to concur chiefly in production of temp.ts, were ye. more necessary to be taken notice of, as they give indications in ye. cure of diseases, & so may influence what we have to say on ye. subject of med.; but as we have found ye. ye. nervous power alone is capable of considerable & sudden change, it is to ye. ye. our med. should be chiefly directed, for we have it little in our power to change ye. state of ye. simple solids; ye. proportion & state of ye. fluids and the distribution of them. e.g. Med. wh. act on ye. simple solids cannot far propagate their effects on ye. system. 2. The proportion between solids & fluids may be easily altered by diet & manner of life, & therefore it is not a predominant part of temp.t; & so med. can have little

effect is, as yet
Discussion made. see
ever. [illegible]
wanting we should rate
effect on them, &
Dreadful state of confu
is very free to be all
more of all rat
particularly [illegible]
keeping as matter
in y. Pl. Pots. of fa
would compare
We may go on to
as y. portrait of

Solid agency is a fac
e.g. water on y. side
of plants to y. solid
Vessels Diff. in Dig
on y. system. Tra
of y. fluids with in
feed on animal
vegetability or imit
of which imperfect
Constitution of a person
allow it they so
operat for the
as we may do
They evidently do
operation of Mat.

fect on it; as ye chief causes of tempt.ts are also often ye chief causes of diseases, medes are often given to little purpose unless directed to ye caus-es. 3. As to ye state of ye fluids I shall treat this more fully after-wards, & shall only ~~shall~~ say at pres.t ye meds can have but little effect on them, & if we produce any changes on them it is done by diet, & th of consequence slowly & by degrees. 4. The distribut.n of fluids is scarce to be altered; but by ye gradual progress of Life; & therefore is most of all out of ye reach of Meds. 5. The State of ye nervous power & particularly Irritability is what meds chiefly affect & being ye part of tempt. wh. mostly ye operation we shall treat of it in particular. Haller in ye 2d. Vol. of his El. phys. has treated on tempts, I therefore beg you would compare what I have said on ye Subject wh. his observations. We now go on to consider ye Influence of Idiosyncrasy & ye effects of custom as ye doctrine of tempts is every where perplexed & confounded wh. this.

Idiosyncrasy

Idiosyncrasy is a peculiarity of tempt. in a particular part of ye system, e.g. error on ye side of Laxity or rigidity, or having a larger or less proportion of fluids to ye solids. The state of ye fluids also are often affected by Idiosyncrasy being diff.t in diff. constitutions, owing perhaps to peculiar ferments acting on ye system: thus a putrefactive ferment may occasion a greater ~~an~~ alkalescency of ye fluids even in a person who lives on a veg. diet, than in one who feeds on animal food. Idiosyncrasy chiefly shews itself by a peculiar sensibility or irritability of a peculiar part wh. renders ye part susceptible of weak impressions of one kind & not of another: thus there is an instance of a person's fainting at ye smell of mutton; wh. you will allow is a ~~peculiar kind of~~ very singular Idiosyncrasy. No part of ye System is exempt from Idiosyncrasy: it is needless to enumerate them all as you may do this yourselves, by examining ye diseases on wh. they evidently depend. Nothing is more necessary than to observe ye ye operation of Meds is as much or ~~much~~ more connected wh. Idiosyn: ye wh. tempt.s

In short it has such an effect on ye operation of meds., ye we should never give a dose of any efficacious one, wodt previously examining whether ye patient has any such peculiarity as contraindication either ye medicine itself or ye usual dose: & if ye patient have not yet experienced ye medicine it will be proper, as Idiosyncrasy is often hereditary, to enquire if any such have ever affected his parents. We are next to observe ye Idiosyncrasy & Tempt. are both variously affected by custom, in so much ye by ye any tempt. may be corrected, confirmed, obliterated or even a new one induced.

CUSTOM

Every body knows ye effects of custom in ye moral as well as natural world, & therefore but regarding these effects, we cannot be sd to have fully handled ye doctrine of tempt & Idiosyn: Our time however will only allow to give ye great outlines of ye subject, wh you afterwards may fill up at your leisure. Custom is ye freqt repetition of impressions on ye System and is often compounded wh habit. Habit is only ye effect of custom, as when freqt repetitions of impressions have given Laws to ye System. The effects of custom may be reduced to 5 heads. 1. On ye simple solids. 2 On ye organs of sense. 3 On moving power. 4. On ye whole nervous System. 5. On ye system of blood vessels.

Effects on ye simple solids. Custom determines ye degree of flexibility of wh they are capable. By freqtly repeated flexion, ye several parts of wh these solids consist are rendered more supple & moveable on each other. A piece of catgut ex. when stretch & having a weight appended to its middle will be thereby bent perhaps ¼ inch; afterwards by freqt repetitions of ye same weight or by increasing ye weight, ye flexibility will be rendered double. The degree of flexibility has a great effect in determining ye degree of oscillation provided ye elasticity is not affected: if it go beyond ye it produces flaccidity. Again Custom determines ye degree of tension, for ye same elastic chord ye now oscillates at a certain degree of tension, by freqt repetition of these oscillations it will be so far relaxed ye ye extension must be renewed in order to produce ye same tension & consequently ye same vibrations as at first. This appears in many instances in ye animal oeconomy, as when diffl muscles concur to give a fixed point or tension to each other: & then

weakly Child totters as it walks, but by giving it a weight to hold by, encreasing
the tension of ye. system, it walks more steadily. In like manner ye. fulness
of ye. System gives strength, by distending ye. Vessels every where & so
giving tension; hence a man by good nourishment from being weak acquires
great ~~degree~~ encrease of strength in a few days, & on ye. other hand evacuations
weaken by taking off ye. tension. These are ye. chief effects of tension of the
System. What I have here said onest not be strictly applyed to ye. simple
fibres, as perhaps it belongs partly to ye. moving fibres.

2. Effects on ye. organs of Sense. Repetition gives a greater degree of
sensibility in so far only as it renders perception more accurate. Repe-
tition alone gives lasting impressions & thus lays ye. foundation of Memory,
for single impressions are only retained for a short time & are soon
forgot. Thus a person who at present has little knowledge of Cloaths will
pretty handling them acquire a skill of discerning them w.h. to others seems
almost impossible. Many are apt to mistake this for a nicer sensibility,
but they are much mistaken, for it is a universal Law y.t. ye. freq.t repetition
of impression renders us less acute. This is well illustrated by ye. ope-
ration of meds: for all meds. w.h. act on ye. organs of sense onest after some
time be encreased in their dose to produce ye. same effects as at first.
This affords us a rule in practice with regard to the med, it becoming
necessary after a certain time, to change one medicine even for a new
of ye. same Nature. Thus meds. w.h. ~~are found~~ even have no great appe-
tite force are found by long use to destroy ye. system to other impressions.
"but to ye. general rule" y.t. by repetition ye. force of impressions is more & more
diminished" there are some exceptions. Thus I have known persons by
strong emetic render ye. stomach so irritable, y.t. ye. 20 of ye. first dose
was suff.t to produce ye. same effect. This I believe oftener takes place
when ye. vomit is repeated every other day or more frequently, as I have some-
times seen; for if ye. same Vomit be given at pretty considerable In-
tervals, ye. general rule is observed to hold good. Thus two contrary effects
of habit are to be noted. And it is proper to observe y.t. ye. greater irri-
tability is more readily produced when ye. first impression is great
as in ye. first case given of ye. strong emetic. This may be farther

illustrated by ye con-
respective as cau-
are instances of
cous the condition
fainting, however vi-
gorous impression
of ye objects from
the other notice of
sensation becomes
are for instance
likewise disagreeable
middle force of im-
ye nature of ye im-
are naturally pleas-
being diminished or
impressions caused by ca-
middle impression
ye loss of novelty.
but they depend also on
state of ye body ye sen-
pleasure objects also con-
of heat & cold in ye
a positive nature in
other arguments to
observation formed
fibres diminishes
specially of life, as ye
repetition, but also
which best has ye con-
of ye feeds also belong
memory & all our

illustrated by ye example of fear, wch is commonly observed to be diminished on repetition wch can only be attributed to custom; while on ye other hand there are instances of persons who have once got a great freight, have for ever after continued Slaves to fears excited by impressions of ye like kind however slight, wch must be imputed entirely to excess of ye first impression as has been already observed. The determining ye force of impressions from ye relation they have to each other, is necessary to be taken notice of here. In ye manner ye want of any particular sensation becomes uneasy. Weak sensations approaching to ye want are therefore disagreeable. Very strong sensations are on the other hand likewise disagreeable, because pleasant sensations are those of a middle force of impression, tho no doubt they sometimes depend on ye nature of ye impression. The reflex sensations of pleasure & pain are mutually exchangeable by repetition, in consequence of ye force being diminished or augmented. Thus Tobacco at first certainly very unpleasant, by custom is rendered very soon agreeable. The pleasing middle impressions become at last indifferent by repetition. Hence ye love of novelty. Our sensations are not only varied in this manner, but they depend also in some measure on relation. Thus according to ye state of ye body ye same thing feels cold at one time, & warm at another. Reading objects also vary in ye same manner. Much use has been made of heat & cold in philosophy & many endeavours made to establish a positive nature in each; what I have now said contributes, among other arguments, to show they are purely relative. This leads me to an observation I formerly made ye increased density & rigidity of our fibres diminishes sensibility, wch cæteris paribus is observable at all periods of life, so ye in ye view cold not only operates on our system by repetition, but also by contracting ye solids & rendering them more rigid: while heat has ye contrary effect of increasing sensibility, by relaxation. To ye head also belongs ye association of Ideas wch is ye foundation of memory & all our intellectual faculties, & is entirely ye effect of custom.

its influence on morals is very great, but y. consideration of it does not pro-
perly belong to this place. With regard to y. body also, these associations
the place e.g. A disagreeable medicine will cause Nausea or even vomi-
ting & ever afterwards y. sight of it will produce y. same effect. We shall
only make one application of this in y. cure of Diseases, w. very much
depend on avoiding irritation. It is necessary therefore in such cases
not only to avoid y. irritating or exciting cause; but also every thing
w. has been any way connected w. it. Thus when Maniacs are
very strongly affected w. y. sight of any one person, we must not only
keep y. offending person out of his sight but every other who has been
often seen w. y. person and might call him into remembrance. Again
in producing effects on y. body associations seemingly opposite are
formed, w. through custom become absolutely necessary e.g. a person
being accustomed to sleep in y. neighbourhood of a great noise, is
so far from being incommoded w. y. acct., y. such noise afterwards become
necessary to produce sleep. It will be of use to attend to this in
practice, for we ought to allow, however opposite it may seem at
y. time, whatever usually attended y. purpose we design to effect.
Thus in y. instance of sleep we must not exclude noise when
we want to procure rest, or any causes w. may seem opposite to such
an effect, provided custom has rendered them necessary.

3. <u>Effects of Custom on y. moving Fibres</u>

A certain degree of tension is necessary to motion w. is to be deter-
mined by custom. e.g. A Fencer accustomed to one foil, cannot have
y. same steadiness & activity w. one heavier or lighter. It is necessary
also y. every motion should be performed in y. Situation or
posture of y. body as y. person has been accustomed to employ in that
motion. Thus in any chirurgical operation a certain position is recom-
mended, but if y. operator has been accustomed to another, such a one, how-
ever awkward it appears, becomes necessary to his right performance
of y. operation

Custom also [illegible]
capable. A person [illegible]
since capable) of [illegible]
small contraction [illegible]
muscles contracted [illegible]
This effect of [illegible]
Secondly where [illegible]
form [illegible]
The [illegible] of [illegible]
body [illegible]
[illegible] affected [illegible]
is. [illegible] of these
therefore [illegible]
accustomed to [illegible]
time [illegible] while [illegible]
in its motion.
Again custom gives
disposition [illegible] [illegible]
whatever manner
new or unusual
We have [illegible]
Lengthen. com. by [illegible]
influence [illegible]
by repetition. I am
be [illegible] by repetition
more easily [illegible]
object may also [illegible]
& thus [illegible]
Secondly in regard to [illegible]
most easily into the [illegible]
of motion does not

Custom also determines y. degree of oscillation of w. y. moving fibres are capable. A person accustomed to strong muscular exertions is quite incapable of y. more delicate. Thus writing is performed by small muscular contractions; but if a person has been accustomed to larger motions w. these muscles, he will write w. much less steadiness. This subject of tension formerly attributed to y. simple fibre is probably more strictly applicable to y. moving, for besides a tension for flexion there is also a tension for irritation & sympathy eg the tension of y. stomach for food, gives tension to y. whole body. Wine & spirituous Liquors give tension. eg. ~~A~~ A person ~~who~~ is affected w. tremor as scarce to be able to hold a glass filled w. ~~any~~ of these Liquors to his head, has no sooner swallowed it then his whole body becomes steady; & after y. system has been accustomed to such Stimuli, if they are not applied at y. usual time, y. whole body becomes flaccid & of consequence unsteady in its motion.

Again custom gives facility of motion. This seems to proceed from y. distension w. y. nervous power gives to y. moving fibres. But in whatever manner it is occasioned, y. effect is obvious for any new or unusual motion is performed w. great difficulty.

We have shewn y. sensation depends on a comunication w. y. ner. com. by means of organs sufficiently distended w. nervous influence. We have likewise found y. sensibility is diminished by repetition. I am now to observe y. in some cases it may be encreased by repetition, owing to y. nervous power itself flowing more easily into y. part, on account of custom. Attention to a particular object may also determine a greater influx into any particular part & thus y. sensibility & irritability of y. particular part may be encreased. But w. regard to ~~the~~ facility of motion y. nervous power no doubt flows most easily into those parts to w. it has been accustomed; but facility of motion does not entirely depend on this; but in a part also on y.

concerning of [illegible]
observed that in [illegible]
to give a fight [illegible]
others that are to [illegible]
by repetition [illegible]
substitute for giving
[illegible] of rebellion
[illegible] custom also
at that [illegible] friends [illegible]
of which [illegible] has be[illegible]
[illegible] one, it will [illegible]
of weight or [illegible]
of length & these [illegible]
for [illegible] judicious
all expressive [illegible]
of [illegible] as we [illegible]
[illegible] a certain degree, but
Custom also gives
[illegible] lines, a free [illegible]
[illegible] But it what [illegible]
about by repetition
in producing [illegible]
[illegible] light [illegible]
be habituated [illegible]
All this is of consider[illegible]
but [illegible] little regard
[illegible] depends on [illegible]
[illegible] greater [illegible]
[illegible] Custom regulates [illegible]
[illegible] a person [illegible]

concurrence of ye. action of a great many muscles. as Winslow has observed that in performing any motion a number of muscles concur to give a fixed point to those intended chiefly to act, as well as those that are to vary & modify their action. This however is assisted by repetition & ye. freer influx, as by experience we know ye. proper attitude for giving a fixed point, in order to perform any action wd. facility & readiness.

Custom also gives a spontaneous motion wch. seems to recur at stated periods, even when ye. exciting causes are removed. Thus if ye. stomach has been accustomed to vomit from a particular medicine, it will require a much smaller dose ye. at first, nay even ye. very sight or remembrance of it will be sufficient to produce ye. effect, & there are not wanting instances of habitual vomiting from ye. injudicious administration of emetics. It is on ye. acct. ye. all spasmodic affections so easily become habitual, & are so difficult of cure, as we must not only avoid all ye. exciting causes even in ye. smallest degree, but also their associations.

Custom also gives strength of motion. Strength depends on strong oscillations, a free & copious influx of ye. nervous power, & on dense solids. But in what manner all these circumstances have been brought about by repetition, has been already explained. The effect of Custom in producing strength may be thus illustrated. A man ye. begins ye. lifting a Calf, by continuing ye. same practice every day, will be able to lift him, when he is grown to ye. full size of a Bull. All this is of considerable importance in ye. practice of physick, tho' not too little regarded. For ye. recovery of weak people in a great measure depends on Exercise suited to their strength or rather wch. is ye. frequently repeated & gradually encreased. Farther it is necessary to observe Custom regulates ye. particular celerity wch. wd. each motion is to be performed: for a person accustomed for a considerable time to one degree of

locity, becomes incapable of a greater e.g. A man accustomed only to
ow walking will be out of breath before he runs 20 paces. The train or
der in wch. our motions are to be performed is also established by custom: for
a man have repeated motions for a certain time in a particular order
cannot afterwards perform them in any other. Custom also very freqtly
associates motions & sensations. Thus if a person has been in use of
associating certain Ideas wth. yt. ordinary stimulus wch. in health excites
pleasing, wth these Ideas the usual inclination to yt. exertion will return
even in yt. absence of yt. primary exciting cause e.g. It is very ordi-
nary for a person to make urine on going to bed, & if he has been
for any length of time accustomed to do so, he will ever after-
wards make urine at yt. time, tho otherwise he would have no
inclination. The same may be said of going to stool, & this affords
a good rule in case of costiveness; for by endeavouring to fix
a stated time for yt. evacuation, it will afterwards at such a
time more readily return. It is farther remarkable yt. motions
are inseparably associated wth. other motions. This perhaps very often
proceeds from yt. necessary degree of tension, but it often also depends
merely on custom, an instance of wch. we have in yt. uniform
motion of our eyes
Custom depends yt. strength & readiness perhaps of all our internal
functions as e.g. The heart, wch. probably was once under yt. power
of yt. will. And this may be sufficient for yt. power of custom
on yt. moving fibres.

3. Effects on yt. whole nervous power

We have found yt. by custom yt. nervous influence may be deter-
mined more easily into one part than another, & therefore all yt. parts
of yt. system are strongly connected, the sensibility, irritability & strength
of any particular part may be thus encreased. Custom also has yt
power of altering yt. natural temperament & inducing a new one. It
also in yt. power of custom to render motions periodical & perio-
dically spontaneous. An instance of this we have in sleep, wch. is

A this Idiot chanced to live within ye sound of a Clock, & always amused himself by counting ye hour of ye day wherever ye clock struck. The clock was spoiled by some accident, but ye Idiot continued to strike & count ye hour of ~~the~~ ye day, in ye same manner as if ye clock had been entire —

body perhaps to other daily revolutions, besides sleeping & waking. There are also certain habits depending on ye. seasons: & many on social intercourse, co. tho it facilitates business has often a bad effect ye. way. There are many diseases co. tho they arose at first from particular causes at last continue merely through custom or habit. These are chiefly of ye. nervous system. We should therefore study to counteract such habits & accordingly Hippocrates among other things for ye. cure of Epilepsy orders an entire change for of ye. manner of Life. We likewise imitate this in ye Chincough, co. often bestits all remedies till ye. air, diet & ordinary train ~~manner~~ of Life are changed.

5th Effects of Custom on ye. Blood & Juices.

From what has been said on ye. nervous power & ye. distribution of ye. fluids must necessarily be variously affected by custom & co. ye. ye. distribution of ye. diffr. excretions: for tho we make an estimate of ye. proportion of ye. excretions to one another, according to ye. Climate & seasons, they must certainly be very much varied by custom.

On ye. head I may observe ye. bloodletting has a manifest tendency to encrease ye. quantity of ye. blood & if ye. evacuation be repeated at stated times such symptoms of repletion & such motions are excited at these times as render ye. operation necessary. The same has been observed in some spontaneous hamorhages. These indeed may at first have some exciting causes; but they afterwards seem to depend chiefly on custom. The best proof of this is co. regard to ye. menstrual evacuation. There is certainly something originally in females ye. determines ye. evacuation to monthly periods. Constant repetition of ye. comes to fix it independent of strong causes either favouring or preventing repletion: e.g. Loss of blood will not impede it, nor filling ye. body induce it; & indeed so much of ye. evacuation connected co. periodical motions ye. it is little in our power to produce any effect by Med. but at those particular times, tho if we could relax ye. uterine System & bring back ye. evacuation when suppressed, our attempts would be in vain & fruitless unless given at ye. time, when ye. Menses should naturally have returned.

This finishes, Gentlemen, what I intended to say on ye animal oeconomy. ~~From what has been said, I imagine you will be satisfied ye~~ I might have said much more on this subject, if our time would permit it, & if it belonged to this place. It is indeed of great importance to you, to be well acquainted wth it; but you may get this knowledge partly in books, & ~~for~~ it is also more immediately connected wth ye Theory of Physick. From what has been said you will be able to judge how far ye operation of meds may depend on Temperament, Idiosyncracy & custom, independant of ye Virtues & qualities of ye Medicine. What I have delivered was far from being speculative, but the Theories were ~~built~~ drawn from undoubted facts, & therefore not liable to fallacy. —— I am next to go on to ~~speak more fear~~ treat of ye remedies employed in ye cure of diseases; but as I should often be unintelligible unless you had a place to go by & an explanation of ye terms made use of, I have here given you a View of ye whole, wth you will please to copy, & after you have done this I shall explain it more particularly —

Materia Medica

Having now considered ye. Subject to be operated upon i.e. so much of ye. animal oeconomy as seems necessary for understanding ye. operations of meds. we shall now proceed to treat of meds. themselves. I told you I intended to range them according to the Indications in wch they are employed. However this plan has its imperfections, but these I shall endeavour to point out in ye. course of my Lectures. It may perhaps not be improper to explain here what is understood by the term of Indication. An Indication is ye. rule for changing any disease into health. The remedies by wch. these changes are produced are called indicata, & ye. Symptom wch. points out ye. changes to be produced, indicantia. In distributing meds. according to ye. Indications, they must be founded on a Pathology or doctrine of diseases. This I have intend to do; but as then disputes, wch. are unavoidable on so dark a subject, shall render ye. divisions very general. I shall wch. ye. generality of Authors divide ye. meds. into 2 classes viz: those wch. act on ye. solids & those wch. act on ye. fluids. Some have added a 3d. class viz: those wch. act on both solids & fluids: this I shall omit, because it often happens ye. these actions are only secondary proceeding for their action on solids or fluids. There are no doubt meds. wch. act both on solids & fluids, ~~this I have not done because it often happens ye. these actions are only secondary proceeding for their action on ye. solids or fluids but as no meds. wch~~ at ye. same time, as salts: but as no meds. whatever are perfectly simple in its operation, I chose to class such meds. as seem complex in ye. operation under ye. head to wch. ye. principal action belongs. I shall make 2 divisions of ye. meds. wch. act upon ye. Solids. The first will comprehend those ye. act on ye. simple fibres; ye. 2d. those wch. act on ye. moving fibre or Solida viva. I shall range ye. Meds. wch. act on ye. simple fibres according to ye. diseases to wch. they are liable. And here I take my Indications from Boerhave who in his chapter De morbis fibræ debilis & laxæ, begins wch. nutrientia i.e. those substances wch. afford matter for nourishing ye. weak fibres. This indication indeed is not strictly correct; for tho it is applicable in

some measure, yet it is not calculated to bring about sudden changes. I now proceed to ~~explain~~ explain those technical terms w.h I employ ~~in order~~ y.t my meaning may be afterwards understood. To begin then By Nutrientia I mean every thing received by mankind as food. The 2.d Indication viz Lexity comprehends such med.s as encreasy. cohesion of y.e particles of y.e simple fibres & so render them more dense. These we have distinguished by Astringentia. This term has been used more loosely for every thing y.t gives strength & ~~gives~~ stops evacuations y.t are supposed to proceed from laxity. In y.e case of rigidity of simple fibres there are also 2 Indications viz. 1. to diminish y.e nutriment or application of new substance to y.e solid fibre but of y.e afterwards. The 2.d comprehends emollients by w.h I understand such med.s as diminish y.e cohesion of y.e simple fibres. We next speak of those med.s w.h act on y.e solida viva. The diseases of y.e moving fibres are very various; but taking a general view of them we reduce them to 3 kinds. 1. Where contractility or motion are diminished. 2. Where they are too strong or too much encreased. 3. Where there is irregularity of motion. In case y.e first Stimulantia are indicated viz. such med.s as excite more vigorous contractions. In y.e 2.d Case Sedativa by w.h term I mean those med.s in whatever manner they act, w.h diminish too great contractility & motion. In y.e 3.d ~~In this~~ case y.e Antispasmodica are indicated, under w.h term, to avoid cavil, I mean such med.s as compose or take off irregular motions in our system. Those med.s w.h act on our fluids I divide, in compliance w.h general custom, into Alterants & Evacuants. By y.e first I mean med.s w.h produce changes in y.e circulating fluids, & are reckoned of 2 kinds as they operate on y.e mixture or Consistence of our fluids, tho perhaps these cannot be separated as we have already observed in y.e preliminary Lectures. With regard to consistence of our fluids they may be too thick

(wh. property is called lentor & viscosity) or too thin. Remedies for ye first are called Attenuantia, for ye last Inspissantia. As to impure we are well acquainted wh. its variety only in one case viz. Acrimony. There may indeed be other faults, but here we neglect as ye doctrine of ye fluids is very incomplete. Med. adapted to Acrimony are of 2 kinds. 1. those for acrimony in general, ye Demulcentia. The 2d are those suited to particular kinds of acrimony. Some have entered wh. great subtlety in their enquiries into ye diff. kinds of acrimony; but it appears to me ye we are only well acquainted wh. 2 species, wh. are ye source of ye rest, viz. the acid & alkaline. Most part of what our own fluids are formed of, either are originally or have a tendency to become acid in ye stomach, & therefore we may suppose an acid acrimony even sometimes to enter ye system & to prevail there. Med. to correct this acrimony term Antacida. Again it is found to be ye constant effect of ye animal oeconomy to convert ye acid into an opposite acrimony. Some affirm ye this is a perfect Alkali; but all agree it is of an alkalescent nature. The med. against ye acrimony name antalkalina. In ye general Indication for correcting acrimony, I might have made a division 1. Into ye med. wh. correct of our fluids & 2. into those wh. obviate acrimony. Those ye obviate ye too great acrimony I have set down under ye title Antiseptica. Having ~~considered~~ explained ye diff. terms wh. occurred under ye head Alterantia; we are now to consider those under Evacuantia. By ye term we understand those med. wh. encrease ye secretion of fluids to be thrown out of ye body. There may be indeed be remedies wh. encrease ye internal secretions; but we are as yet unacquainted wh. them. E.g. We have no medicine wh. will purge ye Pancreas alone without affecting ye Glands of ye Intestines. In ye explanation I shall begin a Capite ad Calcem. 1. Errhina wh. encrease ye mucus of ye Nose. 2. Sialagoga these encrease ye quantity of ye same mucus & also of ye Saliva. In short whatever is evacuated by ye mouth & nearly contiguous Passages.

3. Dispositions
the strict fra
large. 4. Conn
for quickly into
bear y. we ow
friends. 5.
cents by fro
of time. 7. Sl
from composition
fixed. All the
cution on y
only y. monst
each Managers
Sir y. Lec
Fellows y. term
written on y. S
the necessary
begin 10. of
the extra every
one a fresh
of the Founder
Statutes to be rest
than Undergrad
a certain vigour
to y. Stimulants
should be confined
moisture, they can
such external rem
Their is also a com
closer together & so

3. Expectorantia, those wch encrease ye mucus by ye bronchia. I confer this strict sense to ye more general one of whatever is evacuated by ye lungs. 4. Emetica. those wch evacuate ye Stomach: We shall not enter nicely into what is to be evacuated, desiring only it may be remembered ye we mean by Emetics whatever evacuates ye Contents of ye Stomach. 5. Cathartica. those wch in ye same general way evacuate by Stool. 6. Diuretica. those wch encrease ye evacuation of Urine. 7. Diaphoretica. those wch evacuate by ye surface of ye body, comprehending ye insensible perspiration or more gross sweat. All these excretions depend on secretion. There is another Evacuation in ye human body wch does not depend on secretion viz: ye menstrual flux in Women. Med. wch promote this are called Menagoga, wch term is also applicable to ye Hemorrhoids in Men & ye Lochia in Women —

Besides ye terms wch I employ you will find many more in ye writers on ye Mat. med. wch tho often used injudiciously are nevertheless necessary to be understood. I shall here explain them & begin wth ye terms synonymous to those I have used. 1. To Nutrientia are ye terms Restorantia & Analeptica, for they are only a species of ye Nutrientia. Writers have extended ye meaning farther & ranked under ye head many wch I comprehend under Med. for if Salep, Satyrion &c. be restoratives it is only so far as they are nutritive. Linnæus names Analeptica those med. qua vires instant, or wch quickly give a certain vigour to ye system as Wine &c. but these properly belong to ye Stimulantia — 2. Adstringentia. 1. Exsiccantia, this term should be confined to external meds, for the Capacity may depend upon moisture, they can only act in external applications; for if there be such internal remedies they must act as astringents. 2. Indurantia this is also a complex term, for they harden by bringing ye fibres closer together & so are no more than astringents. 3. Roborantia

This is also a complex term, comprehending Med. of diff. classes as Nervina &c; but in so far as these Med. act on y. simple fibres they are y. same as astringentia. 4. When our fibres are endued to a power necessary to perform y. functions, they are said to be in tone. Med. wh. promote y. state are called tonic; but they act only as astringents. Sistentia are med. wh. stop evacuations. These are commonly astringent, but this term ought to be rejected as it leads to an ambiguity. Opium e.g. is a powerful Sistent, tho it does not act by its astringent quality but by taking off y. sensibility of y. fibres & so diminishing their oscillations. 3. Emollientia. Laxantia this is synonymous to Emoll. & perhaps the properest of y. two, wch is not ambiguous; by its being applicable likewise to more gent. of a gentle kind. 2. Humectantia y. term is also synonymous comprehending such med. as add moisture to y. fibres, wh. is perhaps y. chief effect of Emollients, but some extend y. meaning of humectant. rather to increase of y. fluid part of y. system in general 4. Stimulantia. 1. Calefacientia. As there is no way of increasing animal heat but by increasing motion, all y. med. comprehended under y. term are really Stimulants. 2. Abrahentia. This term chiefly means all those topical med. y. determine a greater flow of y. humors externally, but these in my opinion are universally stimulants. The term abrahentia comprehends 3 subdivisions. 1. Such substances as increase y. heat of y. part. 2. Those wh. excite y. heat w. some degree of inflamation called rubifacientia, 3. those wh. raise blisters y. Vesicantia & now freq. y. Epispastica; tho this term more strictly implies abrahentia & is synonymous to it. 5 Sedativa. ~~I have formerly shewn y.~~ This is a complex indication. As y. substances wh. diminish motion in y system are very various, hence y. synonymes of sedativa must be so too.

e. g. [illegible]
[illegible] Conditions; [illegible]
[illegible] Form is y[illegible]
[illegible] as relates y[illegible]
[illegible] Form [illegible]
[illegible] term [illegible]
[illegible] tion of a proposition
[illegible] into
3. Definitive. [illegible]
[illegible] difficult
in every case of
are definitive. [illegible]
1. by [illegible]
of [illegible]
& [illegible] in common
such substances
make a distinction
notice & all [illegible]
y. [illegible]
meaning of y[illegible]
to y[illegible] term y. [illegible]
to. [illegible]
[illegible]
7. Differentia. [illegible]
fluid or 2. by [illegible]
same 1. Dilution
cation of [illegible]
quantity of [illegible]

3. Antiphlogistica is a term very generally used for substances ye. abate inflamation; but as ye. depends on an increased motion, in ye. sense ye. term is ye. same as ye. sedative. Antiphlogistics are also such meds. as relax ye. solids, destroy contractility or attenuate ye. fluids; but here ye. term being too loose ought to be rejected. 2. Refrigerantia. This term is more precise meaning such substances as diminish ye. motion of a particular part, or of ye. system in general. I shall not here enquire into ye. manner in wch. these effects are produced. 4 Anodyna. This term strictly means meds. wch. ease pain, yt would be difficult to determine whether there is an increased motion in every case of pain, if so, wch. I think probable, all anodynes are sedatives. Whatever be in ye. Anodynes, I may say, act either, 1. by diminishing ye. motion or taking off ye. feeling of ye. pained part. Late anodyne has been confined to meds. wch. act in ye. last way, therefore is commonly understood to be ye. same wch. hypnotica, or such substances as induce sleep; tho it would be more proper to make a distinction. Somnifera & sopofera is ye. same as hypnotica & all synonymous to sedativa. Lastly paregorica wch. by ye. ancient physicians were considered as sedativa & ye. Arab. meaning of ye. term implies ye. same. 5 Antispasmodica of ye. term ye. only synonymous ye. I know is Carminativa, yt. strictly implies such antispasmodics as have ye. power of taking off spasms depending on air confined in ye. intestines. 6 Attenuantia. These act either by increasing ye. quantity of our fluids, or 2. by diminishing ye. cohesion, ye. quantity containing ye. same. 1. Diluentia. This term is synonymous to ye. 1st. signification of attenuantia, & diluents only act in proportion to ye. quantity of Water they contain, water being ye. only diluent

But writers on y. Mat: med. often improperly use y. term in y. same general sense as attenuantia. 2. Incidentia. This is used in y. 2d. signification of attenuantia, & is thus called from a supposed theory y. such substances break down y. fluids as w. sharp edges or points. 3. Resolventia are properly such substances as give fluidity to portions of our fluids, y. have been formerly concreted. Authors however use this term in y. same general sense as attenuantia & not w. out propriety as y. same med. answer both intentions. 8. Inspissantia. Incrassantia is a term perhaps equally proper.

2. Demulcentia. Such substances as cover & sheath acrimony are called demulcents. 1. Antacria. Writers on y. M. M. use y. term in y. same sense as I do demulcents; but improperly, as y. term may employ every medicine w. destroys acrimony as Antacida &c. even those w. obviate acrimony as y. Antiseptica. 2. Lenientia. This has been used for Emoll. but it is properly synonym. 8. Demulcentia.

Other terms have been introduced from theories e.g. acrimony has been supposed to depend on angular pointed spicula; hence obtundentia & obvolventia, w. means such med. as break off & sheath those spicula: But these terms should be avoided, as this theory is neither clear nor well founded. Again it has been supposed y. acrimony depends on y. too great prevailing of any of y. component parts of y. blood, & those med. w. brought it back to its own natural state, w. they always supposed to be bland, were called Temperantia. 10. Antacida. Boerhave has divided this Class into Absorbentia & Immutantia, by y. first supposing such substances as took y. acid into their pores w. out changing its nature, & by y. last those w. did. But we know y. nothing absorbs an acid w. out a tertium quid resulting. In y. first intention abs: earths can only be used

in the last, which
12 Philippics
Apology by Dr. Sp
too great patron
following and
flectio in y. prov
being neglect only
mbd. y. kind
Synonymous to y
Synonima: y. appl
is needful to say
y. very synonym
I shall say: take
other Dr. writers,
of y. indications th
Many diseases hav
so y. one of these
Hence phrase
been used in a more
manner. Fabricius obje
this no obstruction
allusion to y. nature
something stuffing
any other meaning
section. The Stoic
carefully evolved them
them to their mo

in y. last, alkaline salts. 11. Antalkalina. This term has no synonymous
12. Antiseptica. I know no synonymous term to this but Condientia employed by Dr. Porter. By antiseptics we mean such medes as obviate y.
too great putrescency of our fluids; but Condientia extends farther, implying such medes, as without obviating any particular changes, keep y.
fluids in y. present state. But y. fluid circulating in our vessels
being subject only to putrescency, I cannot suppose y. any such
medes. of y. kind ~~subsist~~ exist, except they are antiseptics. 13. Erethina
synonymous to y. term is pharmica & Fermentatoria. To y. is
synonim: y. apophlegmatizantia wh. is also synon: to erethina. It
is needless to say more about these terms as they are plain from
y. very etymology, ~~& for y. same reason~~
I shall next take notice of such terms as have been employed by
other Med. writers, & are hastily to complex to give a distinct idea
of y. indications they are intended to answer.
Many diseases have been supposed to proceed from obstruction &
y. cure of these diseases must be effected by removing y. obstruction.
Here y. terms aperientia, deobstruentia, diappillantia. Aperientia has
been used in a more vague sense for every medicine, wh. in whatever
manner dissolves obstruction, & also for such as encrease secretion,
where no obstruction subsists. Diappillantia has a more strict
allusion to y. nature of y. obstruction, as when it proceeds from
something stuffing up y. vessels. But none of these terms convey
a strict meaning as they do not explain y. manner of y.
action. The Adept therefore ought not to be satisfied till he has
carefully evolved them & reduced the meds wh. have these terms applied
them, to their most simple action

We now proceed to ye terms employed in chirurgical Indications & 1st of those in ye cure of Tumors. Here ye 1st Indication is to discuss or resolve, hence ye terms discutientia & resolventia. Altho I do not deny ye ultimate effect of these, yet ye terms are too complex, as comprehending meds very various in ye operation as Emollientia, Antispasmodica &c. Repriment, Repercutientia, Repellentia are all supposed by many synon: to astringentia: but they are ~~very~~ too various in ye operation to come under any one head for tho L. Saturni, Oak bark & opium be all repellents, yet their manner of operation is very different. When a tumor can neither be repelled nor discussed our next indication is to attempt suppuration wh: has given rise to ye terms suppurantia & maturantia. These terms are too general & we ought to consider in what manner they bring about their effects, whether by operating on ye solids or encreasing ye pueiency of ye fluids, & then give them names according to ye most simple indication. Suppuration being brought on, our next intention is to produce or continue good pus. Hence ye term Digesting wh: is equally complex wh: ye former & therefore ought to be judiciously evolved. Digestion often depends on keeping up a proper degree of inflammatory motion in ye part & freely also in removing sphacelous. Detergentia, Abstergentia, Mundificantia, Depurantia synonymous terms. Detergentia & Abstergentia have been transferred to internal remedies & applied to such as have ye power of washing or destroying viscidities adhering to ye vessels & carrying them from ye body & therefore in ye sense if there be any such, they are other than Alterantia. Depurantia have been defined such as as cleanse ye body by promoting ye excretion of ye degenerated fluids. Therefore in ye sense they are synon: to Aperients & Alterants.

The [illegible] indication
of [illegible] is to [illegible]
Paralysis. This
For as it is [illegible]
forming y. [illegible]
[illegible]. [illegible]
[illegible] or [illegible]
[illegible] indication is [illegible]
work [illegible] &
here. [illegible]
given [illegible]
entirely y. [illegible]
which [illegible]
do [illegible] any thing
[illegible] in such case
[illegible] to a [illegible]
The last indication in
[illegible] y. part. The med.
[illegible]. But y. [illegible]
dry powders may
am to mention
[illegible] y. med.
which [illegible] certain
[illegible] indication has been
y. [illegible]

The next Indication commonly laid down by chyrurgical writers in ye. cure of ulcers is to renew ye. lost substance & they called medns. for ye. intention Sarcotica. This indication is entirely imaginary unless in so far as it is applied to meds. wch. removing obstacles to natures performing ye. operation & therefore are nothing but detergents or abstergents. Another indication laid down by Surgeons is to agglutinate or consolidate. Hence agglutinantia & consolidentia, as they if there meds. united ye. parts to wch. they are applied. But ye. indication is equally imaginary wch. ye. former, being entirely ye. work of nature & bandages are ye. only applications wch. can assist her. These terms Agglutinantia &c have been transferred to remedies given internally & then called Vulneraria. This indication is likewise entirely ye. work of Nature, for I know no Agglutinants, & only 2 meds. which promote Suppuration Q & perhaps bark & if writers on M.M. mean any thing by vulneraries, it is astringents; but they are usually called so, Astringents being never proper, nor are they indeed ever employed in such cases in Britain, & if abroad, it is rather in compliance to a rotine practice & to amuse ye. patient

The last indication in ye. cure of ulcers is to cicatrize or draw a skin over ye. part. The meds. supposed to answer ye. end are called epulotics & astrigers. But ye. is entirely an operation of Nature; the charpie & dry powders may assist it.

Enough to mention some terms arising from a supposed specifick property in ye. meds. These were supposed of 2 kinds. 1. Such as were specifick to a certain part of ye. System. 2. to particular diseases. The division has been carried to great excess, as there is scarcely a pt. of System wch. has not a medicine adapted to it. But at first sight

this division made
y. is the common
of y. that division
but these are means
but there are many
written generally m
Surgeon may be agre
y. case y. him might
written Physic on
Fermentation. It tend
more ambiguous
med. applied to all m
3. Febrifuges are
But as med. good for
for y. vomit disorder
stomaching. Some
less, but have they
Pectorals, Stomachics,
med. quite in disease
sick vertigo for him
ice, wind to promote
body. Not written
3. Aromatic or correct
therefore y. terms are
y. nervous system
the med. specific after
kinds of to be and in

this division must appear false, as there is no disease of any particular part
y. is not common to any other part of y. system. I shall mention y. terms
of y. first division in my usual order a capite ad calcem. 1. Cephalics.
By them are meant such med. as are suited to disorders of y. head,
but there are very various & often opposite in y. nature. By y. term
writers generally mean certain substances, who by y. agreeable odour &
fragrancy are agreeable to y. nerves or y. origin in y head. If y. were
y. case y. term might be admitted; but I shall afterwards show y. little
virtue depends on y. odour & all those remarkable for y. odour are
stimulants. 2. term synon: to Cephalic is 2d Nervous; but this is still
more ambiguous & exclusive in its signification as comprehending
med. suited to all nervous diseases e.g. Stimulants, sedatives, anodynes:
3. Ophthalmics are med. supposed to act specifically in disorders of y. eyes
and as med. good for diseases of y. eyes, are also equally efficacious
in y. same disorders in any other part of y. body, y. term has no pro-
per meaning. Some med. as Euphrasia, have been extolled as specifics
in y; but I know they have no title to any such pre-eminence. 4.
Pectorals, Thoracics, Pneumonics, Pulmonics, are all terms applied to
med. suited in diseases of y. breast; but not one of them has a spe-
cific virtue; for I imagine those med. wh. increase y. bronchial mu-
cus will also promote y. secretion of mucus in any other part of
y. body. But writers in general mean by pectorals all those remedies
to promote or correct y. bronchial mucus; two very opposite effects,
therefore y. terms are confounding. 5. Cordiacs. Cordials act in general
on y. nervous system & not specifically on y. heart. 6. Stomachics. Many
of y. med. excite appetite & promote digestion but they are of such
kinds & to be used in such diff. circumstances y. no such term

ought to be admitted. With regard to ye other abdominal viscera ye terms are applied wd even less propriety than ye former. 7. Hepatic This term seems to have no meaning at all, as we cannot conceive any medicine has a specifick operation of ye liver, preferable to any other part of ye system. If any medicine more directly promoted secretion of bile, it might be called hepatic. Some such indeed have been employed but I am not acquainted wd them. 8. Splenetics. This is still more improper than ye former. 9. Nephritics. It is possible there may be remedies wd act more directly on ye kidneys; but it is only so far as ye diuretics. Nephritics are appropriated to diseases of ye kidneys; but they are here ye same wd demulcents, as they act by defending ye kidney from ye acrimony of ye urine & sharp points of ye gravel. Nephritics have not only been supposed to act as diuretics, but also to push out & even dissolve sand or gravel. But we know no of ye kind but such as are diuretics. 10. Uterines. This term is equally exceptionable wd any of ye former; for I doubt even ye Menagoga act directly on ye Uterus. 11. Aphrodisiacs. These wd act on ye Genitals and stimulate to venery. I imagine ye is a false indication, for we know no Medn wh do ye by ye immediate act on these organs. Cantharides have been supposed to be of this kind; but they act only by being received into ye blood & stimulating the bladder, & so communicating ye effects to ye organs of generation. There are other aphrodisiacs wh are supposed to increase ye seminal excretory, but these are imaginary; for we know none but Nutritive, wh by being long detained in ye system distend all ye vessels & seminal vesicles also. 12. Antaphrodisiacs. I can say wd more than ye ye is an unmeaning indication

I come to consider Specifics in regard to particular diseases
very dissatisfied w. y. reasonings of dogmatick Physicians have
led to y. pursuit of Specifics. If y. could be done w. success it
would certainly be very desireable, but at y. day I know no medi-
cine whose action I do not think I can explain by its answering
particular Indication, w. entirely destroys y. notion of a Specifick.
I shall ~~barely~~ content myself w. barely enumerating in our usual order
some of such supposed Specifics, what we have already o. superseding a
further explanation. Antiepileptica, Antimaniaca, Antimelanch: Antihy-
chondr: Anti catarrh: antiophthis: Antihect: Antichachect: Antidysent:
Antiperit: Antistrumat: Antiscorbut: Antipodagrica, Antivener: Antifebril:
I now proceed to another division of terms arising from superstition
false notions —
Antimagica, Alexipharm: Anti Togica, Alexiteria, Alex Galactophora, Ant
lachesia or Lactifuga, Lysbolica Aristolochica, Abortiva, Lithon
triptica, Catagmatica. I have put Lithontriptica in y. Catalogue
I allow there are some med. w. deserve y. name as Alg Calcis
Vitriolate, but these have been but lately discovered & as y. ter
used in M. M. writers it is improperly applied.
So far have I thought proper to treat of terms in order to assist your
understanding diff. Authors & to guard you against y. ambiguous and
inaccurate expressions.

~~my last letter I gave you~~ It is very necessary y. those who en-
gage in y. Study of physick ~~to~~ should be particularly careful
of laying a good foundation at their first setting out; but
nothing is of more importance to them than a perfect knowledge
of y. principles on which y. operation of Med.: depends. This how-
ever is ~~very diff~~ perhaps one of y. most difficult parts y.
y. young Student has to acquire: most of our speculations &
theories are more to shew y. ingenuity & of their authors,
than of any real service; but this differs from most not only
~~that~~ because y. health of y. patient is y. immediate object,
but y. y. physician may be y. destroyer & not y. preserver
of Life, when he is at y. same time satisfied in his own
mind that ~~for~~ he is acting a proper part: w. is entirely
owing to prejudices & w. he has imbibed in some measure
your. It is y. consideration that induces me to give
you my sentiments on y. Laws of y. animal oeconomy
so far as will be necessary to explain y. operation of
Medicines, & y. changes y. are wrought by them on y.
human frame. I am very sensible y. I have y. misfortune
to differ in this respect not only from all y. antient but
most of y. modern Authors, also from y. generality of practitioners
if I except a few, but these men of y. first character now living.

On of y

The Faculty
time of pre
many il re
the Ideas to
succeeding ce
of reg in pe
sonal
general cultiv
necessary that
the Physick should
be of pretty
ten knowledge
Medicine dispe
Simplicity of ope
with Prudence
subject upon
consequences of
Practice of pretty
have been seen
their followers
the Physicians
their endeavours
of from
deserve a pate
on y

The Variety of Sentiments that have ever prevailed & still continue to prevail on the Laws of the animal oeconomy makes it necessary for me to deliver ~~my at~~ in one view the Idea that I ~~have~~ entertain on that Subject, as the succeeding Lectures must in many parts be obscure to you & require frequent repetitions if I omitted to give you ~~the~~ the general outlines on this Subject — It is indeed very necessary that Students on first entering on the Study of Physick should lay a rational foundation, & nothing can be of greater importance to them than a clear & competent knowledge of the principles on which the operation of Medicines depends. — This is indeed attended with difficulties of various kinds: Authors frequently embarass us with Theories & speculations to shew their Ingenuity on a subject where error is attended with the most fatal consequences; & the sketch of the history of Physick in my lecture of yesterday is a melancholy proof that thousands have been sacrificed to the speculations of great Men, by their followers who were at the same time ignorant of the Mischiefs they occasioned; nay even satisfied that their endeavours were calculated to give relief, occasioned

by the prejudices which they had imbibed in some unlucky hour. It is this consideration particularly that hath induced me to devote one Lecture to the investigating & delivering my sentiments on the laws of the animal economy, or for at least a will be necessary to explain the operation of Medicines & the changes that are wrought by them on the human frame — I am very sensible that my Gentlemen must be new to most of you, as they are so different from what is delivered by the generality of Writers; but as I never desire to influence your opinion contrary in opposition to your Judgment, so I shall make it an invariable rule never to deliver a fact but what my own mind considers as truth, & the knowledge of which is attended with evident utility & must have an influence on the practice of Physick — In the new edition of Dr. Cullen's Materia Medica in the chapter that treats of the action of Medicines upon the body in general you have this subject treated very fully & considered in a manner very different from what has been heretofore the case — I would therefore recommend it to your particular attention

One of ye most antient opinions is ye rational Soul presides over & directs all ye animal functions. This is ye opinion of Plato, Helmont, Wepfer, Dolaeus & particularly Stahl. The latter was ye cotemporary & rival of Hoffman, ~~who~~ he revived ye opinion & ushered it into ye World w. all ye advantages ye ~~an~~ extensive Learning & a great Genius can contribute to establish a new doctrine. He had many followers & still continues to be in Vogue in Germany & other parts of Europe, but Dr. Nicholls of London & Rutherford of Edinburgh are ye only British Physicians ye have adopted this Theory. Stahl intended ye diseases were excited by ye Soul which was ye guardian of ye body, & ~~and~~ therefore he ~~did~~ employed none but very weak & in general trifling Medicines. And this will ~~alwa~~ & must always be ye case where ye physician depends chiefly on nature for ye cure of diseases. ~~Stahl & his followers however deserve~~ ~~some particular attention~~ Another opinion w. has prevailed for a considerable time, was introduced & supported by Borelli, Bellini, Pitcarne & others, who considered ye body as a mere hydraulic machine, & accounted for ye operation of medicines entirely on mathematical principles according to ye Laws of Matter & motion. These never took ye sentient principle or nervous System into consideration, w. however deserves a particular attention, as we shall find ye it is on ye nervous system in particular ye med. have ye greatest influence ~~in~~

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I shall consider y. body as consisting of 3 parts: The simple fibre, the fluids & solida viva or moving fibre. By y. solida viva are meant all y. parts y. are endued w. sensibility & irritability, of w. y. nervous power is y. foundation, w. is present in most parts of y. body: as in all Muscles & muscular fibres: in y. glands & organs of secretion; in y. lymphatic & absorbent vessels & in y. whole arterious system. The simple fibre & fluids have neither sensibility or irritability. ——

In y. common & general systems of Physick Diseases are frequently supposed to arise from either too lax or too rigid a state of y. simple fibre; ~~I will allow~~ & therefore Med. prescribed to change & alter y. state of these fibres. Although these properties are not to be entirely disregarded, yet I imagine there are but few instances in w. any sudden change has been wrought in y. state of y. simple fibre; they rather seem to increase uniformly in firmness as y. person ~~[illegible]~~ advances in age, and I have no Idea of laxity being y. freq. cause of diseases ~~[illegible]~~ in old people, nor can I believe y. Diseases ~~are~~ are often owing to rigidity in Children. I am of opinion y. it is in general little in our power to change this laxity or rigidity by medicines, & that if any material changes do happen they should rather be imputed to an alteration in y. moving fibre or solida viva. If y. state of y. ~~bod~~ simple fibre does admit of a change it must be made very gradual, & ~~nor~~ Exercise will in this case do more than any ~~appli~~ medicines y. we can apply ——

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Ever since ye circulation of ye blood has been discovered, Physicians have applied themselves almost solely to consider our system or body as a mechanical hydraulic machine. The augmentation, diminution & acrimony of ye secretions have been commonly ascribed to ye diff. state of ye blood, and urine for Instance has generally been considered to be an evidence of ye state of ye blood, whereas in general the diff. appearances of ye secreted fluids should be ascribed to ye organs of Secretion, & not to ye particular state of ye blood. I shall give you an Instance of this ye will shew you what absurdities even great men do sometimes fall into. Sydham in his treatise of fevers in accounting for ye various symptoms ye happen in those disorders, amongst ye rest accounts for ye paleness of ye Urine &c. is freqtly a fatal sign in them diseases & generally forboded a delirium. He says ye this pale urine is owing to a separation of ye Serum from ye red Globules & coagulable Lymph in ye body, & therefore advises acid & vaporaceous drinks ye they may unite more readily w. ye circulating fluids. But if we only reflect how impossible it is ye such a separation should take place during ye life of ye animal, especially after ye blood has once circulated through ye Lungs, ye fallacy & absurdity of ye reasoning appear at once, tho the use of acid drinks is very proper, but on a quite different principle. But if we attribute ye pale urine to a spasmodic constriction of ye Organs ye secrete ye Urine, we shall not only account for ye symptom in a proper manner, but also shew ye reason why it is generally a fatal sign

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There is nothing more common than to ascribe diseases to y. diff. states of y. blood; tho I think this might almost be entirely disregarded as y. state of y. fluids must & will always depend on y. state of y. solids. In a strong & rigid habit of body there will always be rich & dense blood; & in a weak & relaxed habit thin watery blood will take place. There is nothing more ~~common~~ general than for people to pretend they will correct y. acrimony of y. blood; tho it is impossible for any person to fix upon more than one particular kind of acrimony, viz. y. putrid w. prevails in y. Scurvy. How absurd must it not be to give med. y. as to correct an acrimony w. y. nature of w. we are not in y. least acquainted. But taking it for granted y. an acrimony does prevail in y. blood, y. question next will be whether this acrimony can be corrected & y. mass of blood so changed by Med. as to destroy all y. acrimony lodged there. There is but one Disease in w. we are certain y. a putrid acrimony has corrupted y. whole Mass of fluids, & this is y. Scurvy. This disease is very little under y. ~~pow~~ influence of Medicine. It cannot be cured within a short space of time; y. Cure is to be performed gradually, not by what we strictly call medicines, but by a proper Vegetable Diet; without this no medicine y. has been hitherto discovered has been found an effectual cure for y. disease; & when a Vegetable Diet can be had no further Medicine is necessary. Medicine taken into y. Stomach can have no considerable effect on y. blood; as Medicine as well as Nutriment must undergo some kind of digestion in y.

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Stomach & must be converted into Chyle before they can enter into ye. Mass of blood; they must therefore be rendered mild & almost inert, at least they have can no considerable effects after they have passed into ye. blood; Saline substances however excepted. These do enter into ye. circulation & are suspended in ye. Serum untill they are evacuated by ye. kidneys & sometimes perhaps by perspiration. But even these can never be introduced in such quantities as to have any effect in changing ye. state of ye. blood; for they not only pass off very quickly by Urine, but if we give large doses they always prove Purgative & then are never taken up into ye. Mass of blood. This is also ye. case with all efficacious remedies ye. by ye. antimony could have any possible chance of changing ye. humours. — The simple fibre & ye. fluids being then in a manner out of ye. question to be acted upon by ye. Medicine, it must follow of course that there can only affect the Solida Viva or moving fibre, ye. sensibility & irritability of the which as I observed before depends on ye. Nervous System or extended principle, ye. Sensorium commune. The nervous System has a consent or sympathy over ye. whole body, & pain or pleasure in any particular part is by ye. means extended & communicated to ye. whole frame. Innumerable Instances might be given to prove this: one or two however will answer ye. purpose. ~~Nothing~~ A locked Jaw is generally if not always owing to a puncture or hurt of any nerve in ye. extremities, & is produced by a certain consent or sympathy

Of ye nervous
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of y. nervous system. But tho this sympathy is general, yet some
parts are more liable to be affected than others. It would lead
me too far to take notice of all these, I shall therefore confine
myself to y. one y. has an immediate connection w. my subject
viz. y. Stomach, as particular regard is to be paid to it in accounting
for y. operation of med. Nothing has so considerable an effect on y.
mind as disorders of y. stomach; nor ~~do~~ is y. stomach affected more
by any thing than by affections of y. mind. This is very evident in hy-
pochondriac ~~cases~~ people; ~~where~~ in w. y. disease is principally seated
y. stomach, but y. mind is greatly affected in a very grievous manner.
From Wind of y. head there is generally a poureducous vomiting of bile,
proceeds from y. consent there is between y. Stomach & liver. There
is a considerably consent between y. stomach ~~nor~~ and y. heart & lungs, abstracting from
dependant of its vicinity to those parts. In hypochondriac persons
heart & lungs are often variously affected by y. state of y. stomach.
Wind for instance is more common than a palpitation of y. heart
hysteric & hypochondriac diseases, w. may be instantaneously
removed by a Glass of Wine, Rum or any other remedy y. will take
off y. irritability of y. stomach. Indigestions & distension of y. stomach
Winds will generally bring on a fit of y. Asthma in those who
subject to y. disorder, & whatever takes off these causes will
remove y. paroxysm. There is also a particular consent between
stomach & Extremities. Every person subject to y. Gout must often experience
this, as nothing is more common than a transition of y. Gout from y.
feet to y. stomach. I have known persons ~~who~~ subject to y. Gout whose

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pulse would beat 110 times in a minute on a retrepulsion of ye Gout
into ye stomach, but upon taking a Glass of brandy ye would force
it again to ye extremities ye pulse would immediately fall to ye na-
tural state. It is also to be observed ye ye Gout never gets into ye
Stomach, whilst this organ is in a proper state, but upon being
in ye least weakened or relaxed gouty people are sure to hook it
in ye Stomach, & it is by this ye ye Gout at length proves fatal.
The stomach has also a connection w.th ye whole surface of ye body &
it appears to be particularly connected w.th ye small Pipes over ye
whole frame. Many obserbations prove this. No sooner are some
elements taken into ye stomach of particular persons, than spots
& efflorescences are occasioned on ye Skin. Van Swieten gives us
a Instance of this kind in a person who upon taking over so much
quantity of Chabolyes had spots come out all over his skin. I have
a person who laboured under ye hypochondriac disease who was im-
mediately relieved of his complaints by a few pimples appearing between
his thumb & finger, & as immediately appeared upon their pimples
disappearing or being retrepulled. These things have generally been ac-
counted for upon diff.t principles & ye fault has generally been sup-
posed to be in ye blood & humours. But if this were ye case ye
effects could never be so quick, & could not happen untill ye particular
substance ye has such an effect on ye body were mix.t w.th ye
blood; this however is not & cannot be ye case, as these symp-
toms often arise immediately on ye substance coming in
contact w.th ye stomach

Vomiting from constriction of ye cutaneous pores is another instance
of ye sympathy. This freqly arises during ye cold fit of an Intermittent,
in wch we are certain ye constriction of ye pores on ye skin absolutely
takes place. A draught of cold Water will check this Vomiting in
this case sooner than ~~above~~ any thing; & we know ye large draught of cold Water
will sooner throw a person into a sweat than any of ye Diaphoretics
ye are generally made use of for ye purpose. Diarrhoea &
Dysenteries are freqly if not always occasioned by a stoppage of ye perspiration, & we
may attempt to cure as long as we please, but unless we restore the
perspiration, it will be all to no purpose. These disorders have generally
been ascribed to a vitiated state of ye fluids; if this were ye case, they
would come on by degrees, whereas I have known them seize a patient
in an instant after he had exposed himself to cold, & cured again almost
as suddenly by restoring ye perspiration; this could never be done if
the Mass of Blood were vitiated: it would certainly take a considerable
time to correct any bad disposition in ye fluids. — These
considerations have convinced me ye ye principles of diseases are ~~certainly~~
~~of a mean~~ often lodged in ye simple fibre or fluids of our body; as yet medical writers suppose
they may be afterwards affected secondarily during ye course of a
disease; but ye ye causes of most ~~of the~~ diseases primarily exist in ye
solids. View or sentient principle of ye human frame; as being ye part
ye is endued w. sensibility & irritability & therefore more liable to
be ~~primarily affected~~ than ye parts not endued w. these properties:
And if that is ye case it is but a natural consequence ye our Medi. especially

hen we pourpose to produce any sudden effects, must be principally
irected to act on ye moving fibre. That this is really ye case will
ppear from ye following Instances.— It is a general practice to give
omits in Intermittents before we give ye Bark or any other Medicine
o put a stop to ye fever. The obvious effects in ye case are an evacua-
ion of ye contents of ye stomach; but ~~it is also~~ ye use in these
ases does by no means depend on this evacuation, but principally
n ye sudorific virtue, by wch ye contriction of ye organs of perspiration
are taken off; this is evidently to be ye case by giving Tartar emetic or Ipecacuanha
in such small doses as to excite a Nausea & sickness at ye Stom^ch
ach w^out Vomiting; for then ye same effect wch regard to ye organs of
perspiration will take place wch ye same sensations, tho there is not y^e
ual evacuation from ye Stomach.— If we give ye bark in these
ases before this spasm is taken off, we shall find it in general
ot only ineffectual in curing ye disease, but greatly hurtful to ye con-
titution.— Further: If we give any of ye more powerful astrin-
gents to check an Hemorrhage either from ye Uterus or other
parts, these will greatly produce ye effect before they could possibly
arrive at ye place from wch ye hemorrhage proceeds by ye circulation.
Further. When we give Opiates to take off an irritation in any par-
ticular part y^e is very painful, ye patient is often relieved as soon
as ye medicine comes in contact wch ye stomach; & therefore must
do it by acting immediately on ye nervous System. Further y^e
Lights of ~~Professor~~ Dr. Monro Professor of Anatomy at Edinburgh

prove this beyond a doubt — He instituted there Expts on Frogs, nal
animals y. will live a considerable time after y. heart is
cut out of y. body. He found y. Opiates applyed to y. Leg or any
other part of y. body would produce y. same effect as if the
Animal had not lost y. heart, i.e. they would not only destroy y.
moving power of y. animal but deprive it of all sensation;
but on applying y. Spt. of hartshorn the Frog not only recovered
y. power of motion but also of sensation; tho y. communication
between y. parts by means of y. circulation was here entirely cut
off, as y. animal had been deprived of its heart — What can
give us a more convincing proof y. Medc. act chiefly on y. nervous
system, by being immediately applied to y. Nerves on y. stomach, w.
are very numerous, & not by being first taken up & carried along w.
y. Blood. —

From what hath been now said we draw the following conclusion
That our body physiologically considered consists of y. simple
fibre, the Solida Viva or moving fibre & fluids: that diseases
must always originate in ~~one~~ one or other of these parts: that
y. moving fibre, endued with Sensibility & Irritability, is more
easily affected than the other two: that those Medc.
at least which produce sudden & strong effects, must act
primarily on the Solida Viva or Nervous System: That
the simple fibre being either in Laxity or rigidity

must generally speaking be considered as a constitutional infirmity, & therefore less under the power of medicine, than accidental disorders. — That those diseases which originate in the fluids are by no means so frequent & numerous as we are led to believe by medical writers; when they do happen are rather to be cured by gradual ~~mild~~ slow changes, produced by the milder remedies, than by sudden & strong efforts. — I give you at present no more than a general sketch ~~of~~ or outlines of a ~~plan~~ plan, which is to serve as a foundation for our future enquiries. —

Nutrientia

Perhaps ye whole of our subject might be divided into food & medicine. The first employed by ye term Nutrient: wch comprehends every thing used by mankind in their daily food, as well ye substances wch are strictly nutrient as those wch are employed to obviate & correct ye degeneracy to wch ye nourishment is liable. But more strictly Nutrientia are such substances as are fitted by ye vital power to be converted into our fluids & solids, in order to sustain ye growth & repair ye daily waste. [Here a question arises whether our solids & fluids are formed from one common Aliment or out of a mixed i.e. one containing a principle of nourishment suited to each. The first opinion appears most probable to me.]

All Aliment differs in 2 particulars 1. As it is already assimilated into ye animal nature 2. As it differs considerably from ye animal nature, & requires to be converted into it, by a particular process of ye animal oeconomy. Of ye first kind are all animal substances, wch if not similar, are at least nearly so, & our Nature requires only for ye assimilation Solution & Digestion. The second kind comprehends Vegetables wch must undergo several changes before they can be assimilated. But as ye nourishment of all animals, even those who live on other animals, can originally be traced to ye vegetable kingdom, it is plain that ye principle of all nourishment is in Vegetables & therefore we ought to begin wth ye

Vegetable Aliment

Vegetables wch are

nourishment, while those of an acrid bitter nauseous nature are improper. [Every body en gros will easily allow ye truth of this. There are however several acrid substances wch we use as food, but ye mild, ye bland, ye agreeable are in ye largest proportion in every vegetable, whereas ye acrid, ye bitter, ye disagreeable enter in ye least quantity, wch last however may prove nourishment provided our system is capable of subducing ye nature. Thus we see ye some animals live on what is poysonous to others, wch seems entirely owing to ye particular conformation of these animals. Of all animals ye human body is most delicate in ye choice of its food, & ye acrid, bitter & disagreeable can never be admitted [illegible]ment. There seem however to be some exceptions. Thus Celery & Endive [illegible] in comon food, both are substances of considerable acrimony. But [illegible] observe ye when we use them they are previously blanched wch almost entirely deprives them of ye suspicious tendency. Or if we employ other acrid substances we generally in a great measure deprive them of ye acrimony by boiling. In diff. countrys ye same plants grow wch diff. degrees of acrimony. Thus Garlic here seldom enters our food, but in ye southern countrys, where they grow more mild, they are freely used for ye purpose. Again ye plant wch furnishes Caseada being very acrimonious & even poyson, now in its recent state, affords an instance of ye necessity of preparation of acrid substances even in ye warmer countrys, for by a particular management they allow ye acrimonious juice to run off & ye farinaceous nutritious part of it is left behind. Upon ye whole therefore I maintain ye we use no acrid substances in our food ye are not previously deprived of ye acrimony or if we do they are only employed as condimenta. But if ye question still remain, it is still urged ye acrid substances are employed in our food, I allege they are only such as ye human body by its particular conformation is capable to subdue. Here then begins ye division of plants into food & Medicine ye mild, ye bland ye agreeable plants or their parts being fit for food while ye acrid &c. are proper for medicine. For ye reason Linnaeus's Aphorisms are well founded, insipida & inodora nutrient, sapida odora non nutrient

Our Aliment is either taken from y. Vegt or anl. kingdom, ~~&~~ Writers in Medicine have been long disputing whether Vegt or anl. Diet was y. fittest for us. We shall shortly examine into y. matter. It cannot be denied y. some Men & even whole nations have in every age lived solely on a Vegt Diet. The fruit of y. Date Tree furnishes y. Inhabitants of Persia with their only food. The Inhabitants of Arabia live on ~~Apples~~ Fruits Water & y. Milk of Goats. The poorer people y[illegible] bit y. Cities of Cairo in Egypt & Constantinople generally live on [illegible]. The Capada alone has supplied food formerly for y. wild Inhabitants of y. Western Islands; & most of y. People y. dwell in y. highlands of Scotland live & are robust by feeding on Oats & Onions. I might give many more Instances of Nations & particular Men y. lived on a sole Vegt Diet. But it is equally true y. some Nations, & those not fewer in number than y. former live altogether on an anl. diet. Some of y. Inhabitants of Africa feed solely on fish. In some of y. northern Climates, as in Greenland, Lapland & Iceland, where y. earth is incapable of producing Vegetables & is covered almost y. whole Year w. Snow, the people are forced ~~to subsist~~ almost solely on fish. The wandering Scythians & y. Tartars at this day, by all accounts, live altogether on animal food. The Patagonians dislike

The reason is obvious, for unless substances affect remarkably our organs of sense, they cannot be supposed to operate powerfully on our system. And ye same effect of operating powerfully on our system destroys ye expediency as food. Again as rapid & odorous bodies have ye power of operating change on our system, they must act on ye nervous powers, ye part chiefly changeable. The insipid & bland do indeed act on our fluids; but ye changes they produce must be very slow.

We shall now enquire what part of ye mild & bland substances constitute our aliment. In general ye more sweet substances are all nutritious. Here are little known here as food, but in ye warmer Climates make ye greatest part of it. We have now facts to prove y^t Sugar alone is nutritious, & we shall afterwards endeavour to prove y^t all fruits we use are nutritious only from ye Sugar. ~~Then~~ The farinaceous substances are ~~more evidently~~ nutritious ~~& likewise~~ constitute ye greatest part of our food. ye bland mucilaginous. These two are nearly connected wth each other & both wth ye saccharine substance. For all farinaceous substances before maturity are sweet, & after maturity may be restored to ye sweet taste by malting. Again in fruits observe a change from sweet to farinaceous, wch last property many of them attain upon maturity, & all farinaceous substances when mature abound in oil, so y^t it appears y^t ye saccharine & oily part blended together make ye mucilaginous & farinaceous matters i.e. ye intermediate state between Sugar & oil: so y^t I conclude y^t Sugar & oil blended together & forming ye farinaceous substance is ye nutritious part of vegetables. You will now see what I formerly asserted y^t either oil may enter into ye nutritious substance, or y^t ye nutritious substance by animal process may afford oil. (Vide Lect.)

We are next to consider on what ye difference of nutritious substances depends. It turns on two heads 1. On ye quantity of nutriment each substance contains. On its being more or less easily assimilated —

Bread & are fond of horseflesh. From this is clear y. Man is by Nature intended to eat all kinds of food whether Vegt. or anl. This is further evident if we consider y. conformation & structure of his teeth & Bowels. He has both y. Dentes Canini & molares, y. is cutting teeth peculiar to carnivorous anls. & y. grinders to herbivorous Beasts only have. Animals y. live on flesh have y. Intestines very short, for there is no occasion y. they should be long, as y. food is already of an anl. nature, whereas Beasts y. live on herbs & Grain have long Intestines as y. food is to be converted into an anl. nature before it enters y. blood, but it is observed y. Man has Intestines wch. are neither so short ~~than~~ as y. one or quite so long as y. other, & this is a further proof y. Man was destined to partake of both. We also in general find disadvantages attending y. use of a Vegt. or anl. Diet, y. those are free from who live on a mixed food. Those persons living entirely on Vegt. are commonly weak & relaxed, & almost constantly subject to Disorders of y. Stomach & Bowels. But those who live on Animals only are subject to Diseases of a more dangerous kind. Eruptions on y. Skin, Leprosy, Dysenteries & malignant fevers are freqtly owing to an immoderate use of anl. diet. It conduces therefore to y. health of ~~a~~ Man y.

The first depends on 2 circumstances 1. on their containing y. proportion of sugar or oil, or both, & y. proportion even being given, it may also depend on y. texture of y. subject, w. allows a quantity of nourishment more or less easily to be extracted from ~~y. fruit~~ it. Thus e.g. if my stomach extract from a plant w. contains a less proportion of nourishment than another, y. nourishment will more easily compensate for y. quantity. As to y. difference w. regard to y. quantity of nourishment each subject affords, we refer y. untill we come to treat of each in particular.

Secondly. As to y. more or less easy assimilation. This difference arises not only from y. quality of y. substance taken in, but as often from its relation to y. stomach, or state of y. animal organs. Nothing is more common & more ridiculous than to ask whether y. or y. substance be wholsome. As to y. quantity indeed y. answer might be easy; but as to quality it entirely depends on peculiarity of constitution. The changes our aliment undergoes are of 3 kinds. 1. In respect to assimilation, 2. Solution & 3. Mixture.

Assimilation implies a change of y. nature of y. subject, w. is spontaneously inclined to alterations diff. from those intended to be wrought by assimilatory passages. E.g. All vegt. are spontaneously accescent & y.re nothing of it. beyond y. prima via ~~w.~~ it is accessory therefore y. it should be overcome. Against y. it may be objected y. Veg. are both accescent & alkalescent, but I am ready to prove them all of an accescent nature. Do veg. then become acid previous to their undergoing any other change? I confess y. is my opinion tho it is not y. common one. For if it is evident e.g. y. in y. stomach of a strong healthy man y. food w.out becoming acid tends directly to y. putrefactive fermentation. The argts. produced in favour of y. opinion are 1st. y. an acid fermentation cannot be carried on w.out a considerable admission of air, & y. y. stomach being a close

he should partake of both; & hence we find ye. ~~Men~~ there are few Nations now but have some species of Grain ye. afford them bread; & ye. Inhabitants of hot climates generally are fonder of Vegetables, whereas those who inhabit ye. North eat more of flesh meat, which is both consistent w.th reason & Experience — Various Condiments are also added to our food to make it more palatable & to guard against any bad effects it may have. The most common of these are Salt & Sugar. It is ~~ye.~~ almost a universal custom to add salt to ani. food. It resists putrefaction at ye. same time ye. it renders ye. food more agreeable. But Sugar is perhaps one of ye. wholesomest condiments. It is very nutritious, & it is my opinion ye. Vegetables are only nutritious from ye. quantity of Sugar they contain, for we can extract Sugar from any plant. Sugar is also a very powerful antiseptic, & useful in putrid disorders. Dr. Pringle tells us ye. ye. plague has been ~~cured by~~ stopped by ~~large~~ a. pr. an of Sugar — From such a Variety of substances however w.h we use in food, Chyle is always produced. This milky fluid is taken up by Absorbents created for this purpose & is by ye. thoracic duct conveyed into ye. subclavian Vein & then changed into blood; from w.h afterwards all ye. diff.t humours of our body, ye. differ so greatly from each other are ag.n cented.

vessel excludes ye. access of ye. ~~fluid~~ air. 2. That ye. heat of ye. stomach is too great for ye. acetous process & 3. ye. ye. admixture of ye. spontaneously fermentescent animal fluids, would besides ye obviate this tendency. As to ye. 1st ye. stomach is not ye. close vessel alledged, for it admits a large quantity of air along co. ye. food &c. 2. It has been found by accurate expts. ye. ye. acetous fermentation can be carried on in a heat equal to that of ye. human body; I even believe it is not free of ye. vinous, altho I confess it will be difficult to conduct ye. process in such a degree of heat yet it may be done, & indeed it always does take place, altho rapidly & soon terminating in ye. acetous process. As to ye. 3d. objection, Dr. Pringle has, I think, sufficiently proved ye. ye. admixture of animal fluids cannot hinder ye. acetous process; but on ye. contrary if in certain proportion they promote it. None of these 3 circumstances therefore are sufficient to prevent ye. spontaneous tendency of ye. veg. aliment to acidity, & ~~I am~~ it is certain from expts. ye. veg. aliment first turns acid in ye. stomach, for every stomach, human or brute, is found on examination always to have an acid prev. in it. ~~Hence~~ This acescency in this case is not a disease but a step towards assimilation: & if Physicians observe diseases proceeding from ye. cause, they ought to be ascribed to ye. degree & state of it. As to ye. state or condition of it I think it is this. Whenever ye. aliment enters into a high vinous fermentation co. copious generation of fixed air, commonly called gas sylvestre as of ye. same nature co. ye. produced in ye. ordinary vinous process, it becomes a disease, & has ye. power of destroying ye. mobility & contractility of ye. moving fibres & even ye. tone of ye. stomach itself, producing there flatulency & spasm, from irregular motions of ye. nervous power & at last stupor, lethargy, apoplexy & death. This happens chiefly from fault of animal organs, for tho it appears from Pringles expts. ye. animal fluids do not prevent fermentation, ~~that they~~ yet they have ye. power in ye. sound state of moderating ye. generation of Air

Bile, Saliva, Urine & Semen besides many other humours are secreted from blood, by Organs particularly adapted for this purpose, tho none of these humours are originally in ye. blood, ~~to~~ at least no more than Rum is in Sugar or ~~Brandy in~~ Spirits in Wheat or Rye — When ye. Aliment is taken into ye. Stomach it ~~then~~ first undergoes a considerable change by ~~ye. ope~~ being digested. This process of digestion has been variously explained by diff. Authors. Borellus, Pitcarne & others were for explaining it on mathematical principles & thought that it was performed by trituration or grinding, ye. imagined ye. force of ye. Stomach to be equal to 12,951. ℔. They probably first took ye. hint from observing ye. in many Birds & fowls this takes place as their stomach is muscular. It however affords us an Instance of ye. weakness of ye. mathematical System when applied to our frame, & how vain it is to attempt accounting for ye. actions of animated beings by ye. Laws of Matter & Motion; which has been ye. occasion of many errors ye. still affect Medicine. It is needless to confute this opinion, as we are able to account for this phenomenon on more rational principles ye. entirely destroy ye. former. The Changes ye. ~~are~~ ye. Aliment undergoes in ye. Stomach are ~~[illegible]~~ ye. consequence of ~~digestion~~ fermentation. This is of 3 kinds: The Vinous, ye. acetous & ye. putrefactive, of ye. principles of these however we are entirely ignorant, & I can therefore only

When acidity is a disease it always depends on ye. above & on ye. degree or quantity of it, for altho I have said ye. acidity is necessary, yet it should only be of such a degree as afterwards to be overcome by ye. mixture of animal fluids. I have yet only mentioned ye. organs as ye. cause of acidity, but it also depends on ye. quantity of ye. acid naturally in ye. vegetable, & its tendency to undergo ye. vinous fermentation. For ye. disease does not consist so much in ye. acidity, as in ye. vinous fermentation. For if we take in veg. matter after having undergone ye. vinous fermentation, their effects are not so much to produce flatulency, but depend on ye. quantity of acid taken in. Hence farinaceous substances naturally acescent, when leavened impede tho not prevent ye. generation of flatulencies, & hence ye. same quantity of vinegar does not produce equally bad effects, as of vegetable unfermented Juices —

Acidity as a disease depends on ye. Aliment 1. as it contains a large proportion of saccharine matter. 2. When to ye. ye. is joined a fresh acidity, wh. renders it more liable to ferment. Instances of ye. we have in ye. fructus acido-dulces. 3. When by a previous accident it is put into a state of active vinous fermentation & in its fermenting state is taken into ye. stomach as new Wines, Ales &c — These are ye. qualities wh. are apt to be most hurtful, in ye. consequences. On ye. contrary other substances wh. have undergone fermentation are less liable to produce bad effects, & only do so from their quantity. —

ye. next place ye. morbid tendency in ye. aliment depends on ye. state of ye. body chiefly on a weaker action of ye. stomach (for I pass over effects of ye. gastric Liquors, as we are yet but little acquainted w. them, as their effects depend on ye. state of ye. stomach). To ye. more or less weak action of ye. stomach may likewise be referred ye. greater or less quantity of nutritious juice emulged or squeezed out, & also in proportion to ye. weaker state of ye. stomach, ye. food is longer retained there —

explain them to you by Analogy. Of y. Vinous fermentation you have an Instance in Wine, Cyder or Beer. When this runs on farther & y. Liquors turn sour we then call it y. acetous fermentation. The putrefactive fermentation occurs most freely in anl. substances & takes place when they corrupt & putrify. All kind of food undergoes these 3 fermentations. The first & second always take place in y. Stomach. It has been denied by many y. anl. substances ever turn acid in y. Stomach. But facts demonstrate y. they do. For we find y. persons who have lived on anl. Substances for several days will throw up an acid liquor when they vomit. And y. Stomachs of carnivorous animals always afford an acid. The Aliment then ~~when it~~ in y. Stomach is of an acescent nature, but this is corrected afterwards by y. Bile when y. food gets into y. Intestines, for by mixing Bile w. Acids y. particular taste of these ingredients is destroyed & a neutral ty. is neither ~~sweet~~ Bitter or sour is produced. The same takes place w. regard to y. Alimt. before y. Chyle is separated from it ——— Flatu

I shall now proceed to speak of Vegs. Aliment ——

These are ye. circumstances wch. we should have in view wch. regard to alimt. in diff. persons.
When ye. Aliment is pushed into ye. Intest. its acescency is more certainly overcome by ye. addition of bile, & a supply of pancreatic & intestinal fluids analogous to ye. Saliva & gastric Liquors; & as ye. aliment never rests in ye. Intest. it is always exposed to mixture of new Juices. The effects of ye. bile on ye. aliment are as yet little known. Vegs. acids change ye. bile in colour, consistence & taste, wch. is last sweet, & ye. mixture probably affords a new stimulus when ye. acidity prevails, & in ye. way our veg. aliment stimulates ye. Intestines, produces purging & even a greater discharge of choler itself. It has been imagined by Physicians ye. aliments differ in effects on ye. bile, some encreasing its acrimony &c but they have said seems to me loose & inaccurate. Whether there are substances wch. have diff. properties wch. regard to ye. bile, I dare not determine. I think whatever is said by Authors on this subject may be reduced to ye. greater or less acidity of ye. ~~Bile~~ Aliment.

This & all ye. is necessary to be said wch. regard to ye. assimilation of ye. Aliment, & we are in ye. 2d. place to treat of its Solubility. Solubility always depends on ye. more or less firm texture of ye. subject. We are apt to make mistakes in ye. head; for animal substances, tho seemingly of more cohesion, are found by a weight appended, to be of easier Solubility. Solubility then is more to be noted in Veg. than anim. substances. Thus ye. husk of Veg. are of much more difficult Solution, than an. substances of seemingly ye. same cohesion. In general ye. soft, pulpy &c. veg. substances are of easy solubility & ye. tough &c. contrary, & these are also longer retained in ye. stomach. Almost all veg. substances employed in Diet are specifically lighter ye. water, & consequently on ye. gastric fluids, hence they will float near ye. Cardia & cause Eructations. For some hours these firmer substances give no uneasiness, but afterwards begin to operate on ye. upper orifice of ye. stomach. The solubility of our Veg. Aliment is diversified according to ye. texture. For in

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proportion to y. solubility, two substances containing equal quantity of nourishment, give more, or less to y. extracting powers & in proportion to y. quantity of ~~food~~ nourishment extracted more or less ~~nourishment~~ excrements are left. Vg: aliment esculents pa, ribus gives more faces. 3ly With regard to y. mixture of y. Aliment. Whenever y. oily & watery parts of our aliment are naturally mixed, y. stomach does little. But commonly y. is not y. case, & y. oil & ✓ separate in y. stomach & must be at least in y. viscus intimately confounded. This previous mixture needs little to be regarded in a strong stomach, but in weak ones in y. case y. ✓ & oil separate, y. latter floating near y. upper orifice & causing uneasy symptoms. There are many Instances occurring daily of persons what Eructati, ons are purely oily, & will flame in y. fire, & indeed y. is y. strongest proof of a weak stomach. Oil is liable to particular changes. Out of y. body it checks fermentation, but in weak stomachs it is apt to turn rancid & occasion y. heartburn, w.h. is a disease more owing to y. than any other cause. The quality of y. food does not only depend on vg: aliment thus diversified but also often on a peculiar irritability of y. stomach or Idiosyncrasy, w.h. ob, ns of order here than in any other part of y. system e.g. w.h. respect to honey; tho indeed I think some reason may be given for y., such persons being often affected w.h. it who have a spontaneous acidity, and honey consists of acid & sugar, y. matter of fermentation. This seems to be confirmed by such persons eating it w.h. impunity when new, mixed w.h. y. comb, or when by boiling its air is dissipated & y. acid more intimately mixed w.h. y. saccharine part. I am not certain whether y. theory be sound; but tho it it cannot extend to Spasms &c. produced by a small bit of Egg, crab &c. w.h. can only be explained from Idiosyncrasy. These Instances lead me to suspect y. sensibility of y. stomach extends farther than is suspected, & may be reckond y. cause of diff.t taste &c. The efficient cause of y. stomachs sensibility seems to be y. it may extend y. sensibility over y. system

That y. stomach is sensible to diff.t degrees of solubility & mixture, is evident from what has been already said. Thus a quantity of warm Oil is almost always thrown up. A small quantity of oil itself will produce y. effect. The diff.t sensibility of y. stomach will determine y. stay of y. food in y. organ. Hence peculiar flavours affect the longer or shorter stay. To all this I have to add a peculiar effect of y. sensibility of y. stomach viz: y. whenever y. stomach is employed in digesting of y. aliment, it seems to be established law of y. animal economy, y. there is more or less fever excited during y. time of digestion, necessary indeed in some degree, but when it proceeds to a noxious one it ought to determine us to a change of aliment

These preliminaries being settled I proceed to talk of particular substances. With regard to Veg. Aliments I shall throw them into 3 divisions. The 1st. comprehends all y. diff.t kind of Nutriment, the 2d. The drinks. The 3d. The Condiments. Again I shall divide y. food according to y. quantity of food they afford adding them in y. following order viz. fruits, herbs, roots, seeds, thus beginning w.th y. least nourishing &c. This however is not strictly true as some fruits are more nourishing than certain herbs or perhaps roots &c. but these exceptions shall be marked as they occur during our course. Fruits are subdivided into those we eat fresh & those we eat dry or more concentrated. With regard to y. whole. I do not pretend to enumerate all y. diff.t kinds of Aliment, as they differ in diff.t Countrys, with many of w.ch indeed I have no manner of acquaintance. I shall therefore confine myself to those known in this Country & Britain, and from these application may be made to such as occur elsewhere

I shall first speak then of fruits & of these begin w.th y. fructus acidulus. They are divided into recent & dried. Of these my first division constitutes a natural order called by Linnaeus Drupaceae or y. stoned fruits. The Virtues of these & all other recent fruits depend on 3 Qualities, Acerbity, Acidity, Sweetness & difference of texture. By acerbity I mean acidity joined w.th austerity or styptisity; acidity & sweetness are simple qualities

to sometimes joined as in y. fructus acidi-dulces. These diff. qualities appear in y. same fruit according to y. progress of maturation. 1st. Acidity appears, then more pure acidity & lastly sweetness. In so far as fruits are acerb they should be rejected from our aliment into y. class of med. where we shall speak of them under y. Class of astringentia. We ought however to observe here that acerb fruits are less liable to an active fermentation & have in some measure y. effect of acids in stimulating y. stomach & encreasing appetite. Being of firmer texture they are of less easy solution, apt to be retained longer in y. stomach & the less acid themselves, are more apt to generate a noxious one there. They have y. cooling virtues of acids, but are more to be taken notice of for their astringency, by both w. qualities they diminish y. peristaltic motion of y. intestines, retard y. passage of y. aliment & occasion & accumulation & retention of hardned faeces. 2d. Acidity In a moderate degree Acids are grateful to y. stomach & excite appetite. Directly as acid they are refrigerant i.e. w. weaken y. active power of y. animal fibres. This is not incon-sistent w. stimulating w. I shall show afterwards is often combined w. refrigerant power in one & y. same subject. Again by weakning y. stomach they weaken y. whole system. The acid of Vegt. is never pure but commonly joined w. a Jelly & therefore in stomachs so disposed apt to produce there an active noxious fermentation. 3. Sweetness is y. only nutritious quality of Vegetables & as such is perfectly innocent, but is liable also to bad effects from spontaneous changes, w. depends on its accompanying acid & y. weakness of y. animal organs. All we have in y. Intest. a purgative quality, from y. change they produce in y. bile. Acidity as acid and sweetness as changed into an acid. 4. Texture of more aqueous & tender consistence they are more readily dissolved & are perhaps are more liable to fermentation. If of a very compact

texture, by staying longer upon ye Stomach, they are however apt to generate a stronger acid.

There are ye qualities of fruits & one may judge from ye taste what nature they will be of, ye state of ye Stomach being known. Let us then apply these general principles to ye Stone fruits. These are of a soft lax texture & their juices dilute, by wch means they are easily dissolved in ye Stomach & for ye reason they are apt to be taken in large quantities. As they are acida-dulces they are apt to ferment, perhaps more so than any others, for ye quantity swallowed. Hence they produce a copious acid wch irritating ye Intestines causes Diarrhoea & Cholera, wch take their rise oftener from this than any other cause. Upon ye whole I endeavour to assign Virtues in general, & I beg it may always be noticed that I except particular Virtues. Thus ye are plums of firmer texture & therefore as little liable to ferment as firmer fruits.

Of ye kinds of fruit ye Plum is most refrigerant & liable to ferment & produce Cholera, Diarrhoea &c. The Cherries are commonly imagined less noxious, but to me there appears little difference. Apricot is a sweeter, richer & less noxious fruit. The peach if perfectly ripe approaches to ye Apricot in its Quality, but when its juice is poor, crude & watery its taste acid & almost acerb, it is more noxious than any of ye former.

The Ancients alledged ye Stonefruits were disposed to produce fevers, an effect seemingly opposite to their qualities. This they do by their refrigerating power & preventing digestion, & thus may perhaps sometimes be ye proximary exciting cause. It is imaginary ye ye stones of fruits swallowed will prevent ye bad effects, on ye contrary they may prove noxious, as they have sometimes laid ye foundation for stony concretions, especially if swallowed unripe

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of Linnaeus, then
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to. an acerb crust adhering to them. Besides this should not be confined
to cherries, & were it true, it would extend to ye. other stone fruits. Although
I have mentioned only a few stone fruits viz. such as occur here, they are
found elsewhere, of nearly ye. same qualities, & to be presumed much of ye. same Virtues.
The next set of fruit ye. follow in order are Apples & Pears, Pomaceæ of
Linnæus. These have ye. common properties of ye. other fruits, being liable to
acidity, acidity &c. They are less dilute than ye. stone fruits, have a less active
acid & so are less liable to noxious fermentation, but being of firmer
texture, are longer detained in ye Stomach & so produce a noxious acid.
Apples are in general of a more firm texture & less soluble than Pears.
Some pears indeed are firmer than Apples, but commonly when ripe are
more pulpy. The pear is also specifically heavier than ∇ & therefore
sinking to ye. bottom of ye. Stomach will be more subject to ye peristaltic
motion & sooner digested, while apples swimming near ye. top
elude ye. action, & also by irritating ye Cardia produce uneasy symptoms.
Again Pears have more of sweetness than apples, on acc.t of wh. they
are more nourishing & fm ye. conjoined acerbity, are less liable to
active fermentation. Writers on ye Mat. Med. have without any foundation
ascribed cardiac & pectoral virtues to these fruits. — I had
some thoughts of varying here a natural order called by Linnæus
Hesperidia, wh. take in a good many; but their acid is so pure
that they ought to be considered as Condimenta. I have only set
down ye. Chine Oranges wh. fm their sweetness are certainly nutritive,
but fm ye. acidity they are subject to fermentation, & have besides ye.
other qualities of Stone fruits —
The next in order are Strawberries & Raspes, belonging to ye. Sentecosa
Linnæus; these are very tender & therefore easily dissolved, passing
off before a very active fermentation can take place, wh. likewise is

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prevented by their sweetness, w.h. is greater than in stone fruits, & on all w.h. acc.t they are very innocent.

In classing all substances, after having joined & given those y.t belong to a nat. order, I shall now y.e Grapes, Currants & gooseberries. — Currants may w.h. cn be considered as an acid fruit, considerably dilute & very pulpy when cleared of y.e acerb husk. They have very little sweetness, very little nourishment & are liable to all y.e bad qualities of stone fruits.

Gooseberries are much sweeter, more nourishing & more innocent, & w.h out husks are very easily dissolved & readily evacuated, & on acc.t of y.e sweetness are less subject to active fermentation.

Grapes are a richer fruit & preferred for y.e making of Wines as they contain a great quantity of saccharine matter, on w.h acc.t they are also more nutritive than any we have mentioned, perhaps as much as y.e dates & figs hereafter to be taken notice of. In y.e unripe state they are acerb, in y.e middle state they are apt to ferment, when perfectly ripe & taken in a moderate quantity they are among y.e innocent fruits. — I shall conclude what I have to say on recent fruits, w.h some account of y.e diff.t method of using them. We have already observed their effects when used fresh. Whenever we employ heat we change y.e qualities, dissipate y.e active acid & dispose them less to ferment. The acerb fruits by y.e dissipation of y.e acid by boiling &c. are rendered more so, & consequently not liable to a noxious disposition. Hence universally roasted or boiled fruits are safer than fresh. We commonly also join them w.h matters which dispose them less to an active fermentation. Thus Milk & more ~~often~~ cream is often used, having y.e effect from its oily nature. We shall

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rwards see what effect acids have in coagulating y. Milk. We
o now commonly use Aromatics as pepper, &c. by stimulating &
vigorating y. stomach by taking of spasms excited by Gas sylvestre
by their antiseptic virtue, enable them to resist fermentation & prevent
bad effects. Wine is used to obviate y. bad effects of fruit, but
depends on its spirituous part, & therefore pure spirit, were it
otherwise noxious would be most eligible. If Wine be used it should
strong & such as have undergone its fermentation & is ripe
mellow. Another method still of using them is w. sugar. This
ly renders fruits more nutritive, whether it prevent ferments,
n may be doubted; but as I have observed y. sweet fruits are
lest, so must a moderate addition of sugar to acid fruits, in order
supply y. native want of sweet. Some. use oily matters, as
ter in apoplexy. This is a very proper, tho' less usual addition,
on its antifermentive quality. But in weak stomachs where
gastric humours are in less quantity & less saponaceous, y. oil
apt to separate & produce ill ~~qualities~~ consequences as heat,
n &c. w. we have formerly observed. It has been a question agi
d by physicians whether fruits are safer before or after meals.
answer of y. seems to depend on a knowledge of y. stomach.
a weak stom: they are more apt to be noxious when empty
en when distended w. ~~food~~ liquid food. Here likewise they cannot be taken
such quantities as to hurt. In strong stomachs there is little dif
nce. Here they could seem to promote appetite. In weak sto
chs, even when full, if taken in too great quantity, they may
very hurtful by increasing y. active fermentation of y. whole.
Antients allege y. y. mild fruits should be taken before & y.

b after meals, as being fitter to brace up ye Stomach & promote
ction. And indeed if taken in moderate quantity ye rule may
ld true.

hon ye whole if you observe ye effect of ye 2 qualities, acerbity, acidity,
weetness & Astringency you are then in a condition to judge of
ll & any other fruits, wherever they occur

Dry fruits

e are fit or indeed ~~subjected~~ to ye process except those wch abound in ye rect
te wch much saccharine ~~matter~~ Juice. Tis true ye food of every kind are preserved, but
is more for elegance than as a part of food, & ye dried fruits I am to mention
n are only such as are nutritive. I have said ye Sugar itself was nutritive,
y ye very principle of nourishment, of wch we have various proofs. Thus
. Negroes employed on ye Sugar manufacture live almost solely on this
latter exceedingly. Another remarkable proof we have in ye fruits of wch
m bespeak, their being remarkably fattening, but chiefly in ye dried
ate. Again Birds in fruit time, when ye fruits are ripe encrease in
tness, & at such time Dr Robinson has observed ye their liver is much
larged, whence we see how fat people are so much subject to Diseases
ye viscera, especially of ye Liver.

he dried fruits I am to treat of are ye Grape, Date & fig. They have
common properties of ripe fresh fruits, but are not joined wch
powerful an acid, part of it being dissipated in drying. Hence they
e less liable to run into acetic fermentation, but if taken in too
at quantity they will run into ye acid produced will have all
bad ~~qualities~~ effects of fresh fruits in producing Diarrhoea, cholera &c

Dried Grape. Raisins, Currants.

y are two kinds, the uva passa majores or raisins, & ye uva passa
nores or currants. The last have more acid joined to their sugar, hence
e laxative. I do not doubt but sugar itself may stimulate ye Intes

stines & be a gentle Laxative, but its stronger effects in purging are to be deduced
n its conversion into an acid. Hence Currants are more purgative ye. rai
ns & these than figs on acct. of ye. acidity: & for ye. reason Prunes & curr
e nearly similar in ye. effects. The raisins will also have more or less
f these Virtues in proportion to ye. quantity of acid they contain

Date. This fruit is less generally known here, but it is ye. comon food
f a great part of Asia. Were I to give a botanical acct. of any productio
it would be ye, as ye. palm tree whence it is produced is so curious in
s vegetation, & so extensively useful in Life. But as I have nothing
new to offer on ye. subject, I shall omit it, referring you to books where
such Dequisitions are particularly treated. The date is of diff. kinds.
In their best state they are a pure saccharine fruit free from acidity
but is. ~~peculiar~~ considerable acerbity. Formerly they were much employed in Med:
but are now justly laid aside for ye fruits is. contain all ye. qualities in a greater degree
Yes These are ye most nourishing of ye. dryed fruits. They contain a large
portion of saccharine matter united is. mucilage. From ye. containing
much Sugar & from being viscid & less readily perspired they are more fit
for nourishment. They are also from ye. Sugar & Mucilage used as Demulent,
ye. Juice is more fit for covering acrimony. The date & raisin were
formerly used in ye. intention: ye. first is now laid aside; but we retain
raisin as giving a grateful acidity to ye. luscious taste of ye. fig.
fig is also Nephritic from its demulent quality. They have been said
to produce Lice, but there is no foundation for believing ye. either from infor
tion or from our own experience of them. It is true ye. in ye. native Country
they make ye. chiefest food of ye. poor people, who are generally dirty,
& may have given rise to ye. opinion

The next Class we are to mention is ye Cucurbitacea, of is. many
are used in food than those that I shall here mention viz:
Cucumber, Melon, Water Melon, Pompion

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Cucumber. This is taken in great Cities by ye. lower people as nourishment, but by ye. better sort it is chiefly employed as a refriger.t & condim.t to accompany animal food. They have a bland insipid Juice w.th out acidity or sweetness, approaching as appears by ye. ripening to a farinaceous nature. When green they have no nourishm.t so they are only to be used in ye. Summer months & by ye. sedentary. Altho Cucumber is neither sweet nor acid yet it is considerably accescent, & so produces flatulency, cholera, Diarrhoea &c. Imply all this to ye. accescent nature, tho indeed its coldness & flatulency may be encreased by ye. firmness of ye. texture. They are somet.s changed w.th little change from ye. Stomach, after having been detained there 48 hours. By this means therefore ye. acidity is greatly encreased, tho the oil & pepper ye. cond.s commonly employed are very useful to check fermentation. We have lately began to use another a cond. viz: the skin w.th is bitter & may therefore supply ye. place of aromatics. But shall here observe ye. ye. Cucurbitaceae have many of them a very acrid nature in ye. skin Eg. the Colocynth: is of this kind & is very bitter, & it is doubted that ye. cucumber may be by particular management converted into a similar nature. Hence it would appear ye. as ye. bitter of ye skin of cucumber is of ye. kind, it should on ye. acc.t only be used when very young.

Melons. These have ye. same qualities we were just now mentioning, being of a tenderer texture they are on ye. acc.t less hurtful & as accompanied w.th Sugar are consequently more easily digested, from its sooner acting on a fermentat.n w.th hastens ye. solution. All our watery veg: are to be considered as Diuretics. Cucumbers & Melons have been reckoned probably so & ye. latter so much as to bring on bloody urine. But it seems to be w.th out foundation. To me indeed they would rather appear to have a contrary effect by encreasing ye. watery part of ye Urine.

Melon. This is of a sweet taste, remarkably watery & juicy & therefore easily soluble in ye. Stomach. The Egyptians use this for Meat, Drink & Physick. They give ye Juice to

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ye who labour under violent fevers, & wd very good effect. They may however be hurtful by their refrigerating quality in ye same manner as I observed of ye fructus acidi dulces

Pompions. Are only used when boiled & therefore are more safe as their texture is much loosened, but at best they are weak insipid food, except from ye dressing, and are therefore now neglected. It tends to shew ye nature ye when well ripened or when kept long after being cut from ye stalks, they become mealy & farinaceous & therefore more nourishing & likewise safer wd respect to ye effects I spoke of

We now come to ye herbæ esculentæ. Olera has been used for every kind of Vegetable food into ye post. Linnæus has confined ye term Olera to a particular order of plants to wh belong ye Orage, Beet & Spinage.

Orage. It is of ye coarsest texture of ye 3, insomuch as to be hardly known now in our Gardens

Beet. Is more tender than ye former, but less than Spinage, to wh both this & ye former have almost entirely given place. They are all of a water & insipid taste, wd little saccharine or mucilaginous quality & therefore are of a weak Nutrim. On acct of their little acidity & coarse texture they are less flatulent than some of ye other Olera. They are said to be laxative but as they have little acidity or sweetness, ye quality cannot be remarkable. They are however accescent & hence if taken in considerable quantity may prove so.

Nothing is more common than to call these Olera of a nitrous quality. This was ye opinion of Dioscorides & he has been followed in it by almost every succeeding Author. But fm a strict examination of ye experiment

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Salts, then appears no foundation for such an opinion. The effects of all y.
olera as laxative are very dubious. In weak stomachs they rather increase co
diveness, having nothing in them to stimulate y. intest.s & encrease y. peri
staltic motion. They are indeed y. most cooling & least irritating of y. alim.t
what I have said of y. But is entirely to be understood of y. herb, for y.
root is very sweet & according to Maregraafs experts contains a larger pro
portion of sugar than any root he examined; but y. nature of y. will
be better understood when we speak of roots & Nasturtium. These
belong to an order of plants much used in food. Their general character is
y. they are remarkably acrid but not poysonous; on y. contrary y.
acrimony is of considerable use in medicine & in y. bland state, being
deprived of y. acrimony by boiling, they are used as food. Hence I took y.
general rule y. all our aliment is remarkably bland, & y. y. acrimonious
part has little share in it. Of these we only use y. Brassica & Turnips
as food, the others as condim.t. Brassica is most freq.t in use &
of y. there are many varieties, as Colewort, Colly-flower, Broccoli &c. All
y. are sensibly sweet & therefore more nutritious than most of y. herb
aceous kind. The distinction we make of y.m depends mostly on y.
texture. Formerly we only employed y. Colewort, w.h has given place
to y. more tender savoy, & perhaps this last will give way to y. still tender
Colly-flower. These of y. ~~[illegible]~~ Brassica kind are more flatulent y.
y. olerace, as having more of a saccharine quality w.h enables them
to ferm.t & by y. means to produce an acid in y. stomach. I believe
they produce these effects in a milder degree in proportion to y.
richness of y. sweet & tenderness of texture. On y. acc.t Cabbage is
rendered most flatul.t & hence a confirmation of y. general rule y.
flatulency is most owing to firmness of texture. Thus Cabbage itself when
very young is tenderer & less flatul.t than when full growen

Nasturtium. Is used merely as a cond.t. Were it not of scanty growth
it might enter into our food, for I know y.t by boiling it is deprived of its acrimony

afford an agreeable Green

Lactuca agnina. This is a species of Valerian. It is an insipid plant perhaps for its being taken up early in y. Spring. For in its more advanced state it is somewhat bitter & then approaches in some degree to y. 4 following. In general all early plants are either insipid or remarkably acrid. Lactuca as we use it has y. general qualities of y. olerraceous plants

Cichoreum, Dens Leonis, Endivia, Lactuca. These are of y. Class Syngenesia, and belong to y. Semiflosculosi or plano-petali. They are to be mentioned hereafter as med. under y. subdivision of amaro-frigida. These are all lactescent plants & it is almost an universal rule y. all those wch. afford a milky juice & remarkably acrid & many of them poysonous. This set has been excepted & seemingly wch. reason as we use them so much in food. But they do not infringe y. general rule so much as has been imagined: for one species of them is very narcotic, & all are so in some measure when old. For y. reason we only use them when very young, or blanch them to free them of their acrimony, wch is done by depriving them of Light. When young they are accescent, cooling, flatul.t, when old, less accescent, less cooling, less flatul.t, wch. poss. may be owing to taking y. skin along wch. them. But they are never used wch out a Condiment

Alari. This is an Apium or Petroselinum. It belongs to a set of plants often lactescent, but independant of y. they have a poisonous acrimony wch. acc.t it is blanched, tho it is never entirely deprived of its acrimony y. way, but more so by boiling, when it acquires a mucilaginous sweetness & is then used in our animal broths, especially in Winter, for wch. season it is fittest on acc.t of its acrimony

Asparagus This is a intermediate substance between root & plant. In its adult state it is remarkably acrid, and only therefore eccalent in its first state of growth. There are many other plants wch. by age, turn acrid, whose first shoots we might use as food, as hops, thistles, bardane

Cardanum &c. but asparagus is y. only one employed at present. This is somewhat sweet, but more remarkably mucilaginous; from both these qualities it is manifestly nutritious, more so than any of y. other mentioned; also on acct. of its mucilaginous juices, tho it be acescent, yet it is less flatul. than some of them. It has often been supposed to be of very active parts, even as we eat it; these however appear to reside in a peculiar acrimony quite distinct from y. nutritious matter & w.h. seems to give y. smell w.h. is perceptible in y. urine of persons y. eat it.

Cynara. Artichoak. The part in use is of a nature somewhat between herb & fruit & is y. receptacle of flower & seed. Artichoaks came early into use in Europe & came into England about Henry viij time, & were then considered as y. rarest delicacy & sold for half a guinea pr. a piece. While they continued thus rare, many qualities were attributed to them. Among y. rest it was said to be aphrodisiac, but w.out foundation. In southern climates Artichoak is eat raw as Sallad w.h oil & pepper; but this practice is only fit for warm climates. In this country we use them boiled, & if young they are of a tender texture & easily digested. They are little acrescent, consequently not flatulent. The taste of Artichoaks is sweet, w.h bespeaks them remarkably nutritious.

Fungi. ~~I have set~~ I have set down this next to y. herbs. They are indeed only herbs in so far as some of them are above ground, but they differ so much from every other herb & even vegetable, and besides y. virtues are so diff.t y. it makes it difficult to class them. Of y. Fungi 3 distinctions are to be noticed: Truffle, Morelle & Mushroom, w.h takes in y. other Fungi.

This is as singular in its quality as vegetation. It never rises above ground or sends out shoots in y. earth; being a single solitary ball, somewhat firmer than Mushrooms. ~~In y. Country~~ They are ~~never~~ seldom found in England. From Geoffroy we learn y. it is not acescent, but yields at first a vol. alkali, w.h shows it approaches near to y. anim.l nature.

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Hence its qualities may probably be deduced & for ye reason it is less flatulent more nourishing & more stimulate to ye system, than any other Veg: & of ye great Variety of Veg: commonly said to be of aphrodisiac Virtues, it is perhaps ye only one wch has any title to them. In those Countrys where it is used it is never found noxious or poysonous wth ye mushrooms. It has been alledged ye on acct. of its firm texture it may be of slow solution & therefore difficult to digest

Morille. This belongs to a Genus called by Linnaeus Phallus. There are two Species, the one eatable, the other fœtid growing about ye hedges in England & remarkably fœtid. It is of a porrous cellular texture not lamellated as ye mushroom. The Morille has been said to approach in qualities to ye truffle; but it should be rather considered as a fashionable Ornament to our dishes, than proper food.

Mushrooms. Physicians have disputed much about ye qualities of these, some considering them as a rich nourishment & perfectly innocent when properly chosen, others asserting them to be deliterious. Most of ye fungi indeed are of a hurtful quality, & with respect to ye whole tribe, there are very few esculent. Esculent Mushrooms are v^ry nutritive very readily alkalescent & more so w^thout intermediate acescency than other vegetables, therefore a rich nourishm^t & much akin to animal food, on wch acc^t they may be indulged in considerable quantity to strong persons. It requires however skill to distinguish ye esculent kind & ~~have~~ very few have studied Clusius or other authors who have been at pains to distinguish them, especially those, viz. ye Servants, who are employed to gather them. Perhaps our esculent mushrooms, acquire a dangerous acrimony by age. Wherefore as we are exposed to all these accidents, I think it may be prudent to avoid them for ye most part. In hot climates they may be used as a light kind of animal food, but here it

✠ Viperograss ✠

it is proportionous to use them along wth animal food, as they do not correct its alkaline tendency—

Esculent Roots. Radish. Turnips. These belong to ye siliquose wch. we mentioned under Nasturtium & Brassica to be an acrid Class, but never poysonous, & often good in Medicine. This acrimony has given rise to particular opinions, some asserting y^t. they are cooling while others call them alkalescent. Both however seem to mistake. Their acrimony is diuretic & diaphoretic & so discharges all y^e. parts of y^e. blood y^t. have degenerated into a putrescent acrimony. On y^e. other hand I have said y^t. all plants are acescent & I except only y^e. fungi. Perhaps indeed y^e. Siliquose do run on quicker to putrefaction, but y^t. is only a difference in degree & not in quality. Thus far of y^e. Siliquose in general.

Radish. This as acrid is used only as sallad or Condiment. When boiled it becomes mild, & were it not for its slender state when young & for y^e. difficulty of depriving it of its acrid skin when old & its toughness, it might be used y^e. way in y^e. kitchen—

Turnips. This is easily deprived of its acrid skin & is also pretty large wch. is y^e. reason why it is preferred in our Markets, but it is a watery weak nutrient, very flatulent & purgative in consequence of its acescency—

Lorzmera & Tragopogon. These belong to y^e. Semiflosculose. The roots are remarkably free from acrimony wch. appears in y^e. plant above ground & of what acrimony they have, they can easily be deprived by boyling. They are sweeter than Turnips & therefore less acescent & less flatulent but yield to y^e. 3 following—

Carrot, Parsnip & Skirret

Skirret is remarkable for being a plant from whose roots Meregraaf, of all y^e. plants he tried, extracted most grained Sugar, except y^e. red Beet. The Carrot yields a considerable quantity of rich saccharine matter in y^e. form of Syrup. From y^e. Parsnip a small quantity of grained

Sugar, & a large quantity of very viscid Syrup & a copious Mucilage, are extracted. From ye. sweet mucilaginous matter contained in all they are considerably nutritious. The quantity of nourishmt. is least in ye. Skirret & greatest in ye. Parsnip for diff. mixture in each of ye. saccharine & mucilaginous matter. In ye. Skirret ye. saccharine fermentable matter is most open, & therefore ye. of ye. 3 is most accescent & flatulent. All 3 are taken from a class of plants yt. abounds in deleterious acrimony. Parsnip from its rankness taste & smell, is most suspected & most shunned. And here I may observe yt. ye. bland nutritious Vegetables are agreeable to all, but in those of a mixed or suspicious kind we see many Idiosyncrasies. It is said ye. parsnips turn very acrid & age, in so much as to have produced mania & other dreadful effects. When old they are called Magnifes by ye. english. These effects might perhaps have proceeded from taking Hemlock or others of ye. same bolliferous kind by mistake. —

Leek, Onion, Garlic.

They belong to ye. alliaceous kind & are all species of one genus. In ye. rect. state they are acrid but harmless to ye. human body. When by age or climate ye. acrimony is too great, we do not use them as food. In Spain ye. Garlic being equally mild & ye. Onion, is used as common food. By ye. ordinary culinary preparation their acrimony is dissipated & a remarkable mild substance remains, promising much nutrimt. & those, who can digest them raw, will certainly obtain. Tho sometimes shunned as food, yet on ye. acct. they are employed in Medicine, uniting ye. two qualities of pectoral viz. on acct. of their acrimony being in their rect. state expectorant, in their boiled on acct. of ye. Mucilage demulcent, provided ye. quantity taken be suffict. Some have of late thought they had found a somniferous quality in Leeks, but this is

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not confirmed yet by a suffic.t number of expts. Besides y.e 3 here mentioned there are several others of y.e same tribe y.t we use as Cond.ts, but only y.e Leeks & Onions as Diet. In its rec.t state y.e Onion is most acrid; in its boiled y.e Leek retains its acrimony most tenaciously. On acc.t of this & some difference of texture, y.e onion is more easily digested & more universally used than y.e Leek, being more easily broke down & more generally agreeable.

Potato. This is an intermediate substance between escult. roots & farinaceous seeds. It is of g.t use as it is of easy culture & plentiful produce. Some have alledged it has bad qualities, but experience shows y.e contrary. As accident indeed it may be flatulent, but as it approaches more to y.e farinaceous seeds it is less flatulent & more nourishing than any of y.e oleraceous roots or herbs, I know. That they are farinaceous, there are many proofs, for they can be applied to all y.e uses & purposes of y.e farinaceous seeds, such as making bread, starch, vinous liquors &c. The y.e plant belongs to y.e genus of Nightshade, & tho y.e seeds retain y.e acrimony of y.e genus, yet y.e root is found to have no such qualities, being in my opinion of y.e safest & most innocent nutrim.t —

Salep. This is a preparation of y.e root of y.e orchis w.h grows plentifully in Turkey & Persia. The Orchis of y.e Country seems to be entirely of y.e same nature, tho not so convenient, as it does not grow to y.e same bulk. The method of preparing of Salep is as follows & given us by Geoffroy. They throw y.e roots into V in order to free them of y.e Skin. He does not mention whether it should be hot or cold, in my opinion y.e former would be y.e most proper. It is afterwards boiled in V, untill, as I suppose, it is perfectly soaked w.h it. The V is then drained off & y.e roots being up to dry till it has acquired a gummy or resinous appearance. It is said to be imported into England in y.e form, but here we commonly have it in powder. Thrown into Water it melts into a mucilage of a smooth taste somewhat sweet. Both for taste & mucilage it is plainly

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of a farinaceous matter & is liable to ye same inconveniencies, acescency & fermentation, especially acescency. It is extremely cond. for affording an extempo-raneous mucilaginous drink, but as we use it, it is too weak a nutrient. Hence I have no faith in its aphrodisiac virtues; but it is very fit where acrimony abounds in ye prima via as in Dysenteries, as we find confirmed by Degner on ye subject.

Many other roots of ye farinaceous kind might be mentioned here. Several of these roots are in ye rec. state remarkably acrid, as ye Cassada of Surinam already mentioned. In ye same manner ye Laplanders use Cathe lb. affords a mealy matter wh. ye same management. In ye Country ye Arum seems to be of ye same nature, being when recent very acrid, by drying it ~~in~~ turned mild & farinaceous, & I make no doubt but it might be used as a farinaceous substance in food. I know one purpose wh. it serves in common wh. ony. farina viz: making a fine pond. for ye hair.

SAGO. It is ye product of a Species of palm called Sodapanna &c. We have been long acquainted wh. ye substance, but have often disputed about its origin. We are now assured ye it is ye pith of ye tree abovementioned. When ye tree is cut down ye pith is separated fm its filamentous membrane & afterwards farther cleaned by winnowing & broke down into fine meal & dried in ye Sun. Some say ye this meal is made into pulmentum, ye ∇ & afterwards formed into ye grains in wh. we have it. I am apt to believe ye opinion is just. Possibly some such substance might be produced fm some of our own farinaceous matter. Sago appears to be a pure mild bland farinaceous substance, having ye oil & sugar intimately blended. Hence its qualities may be understood, being demulcent as other farina &c. It dissolves in Water into a viscid Mucilage & it is owing to its viscidity ye it is less accescent & flatul. than ye former, keeping longer, even for 20 years, & also a sublime in its mucilaginous state. Hence it is considerably nutritious, as ye E. Indians experience.

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Farinaceous Seeds.

These make y. chief vegetable Nutrim.t of all ~~age~~ nations. They are subdivided into 3 kinds 1. Cerealia. 2. Leguminosa. 3. Nuces oleosa. The 1st is y. pure farina; y. 2d is more oily, y. 3d so much more so as to have y. oil separate & easily extracted from them. The Cerealia are of most universal use. Thus Barley, Rice & Oats are y. food of y. North. In y. southern parts of asia, Africa & America, wheat, Rice & Maize. In y. E. Indies they are supplyed w. european corn. To these Millet may be added. All these substances belong to a distinct family of plants under y. name of Culmifera or Graminosa. The whole of y. Gramina are of y. same nature & furnish alim.t to Men & domestic animals. All these might be used in food; but we employ those of largest growth & product. The properties of all are much in common. They are all acescent & saccharine; or by malting convertible into saccharine ~~matter~~ nature. Hence they are y. proper subject of fermentation & hence they are acescent, tho less so than any of y. Veg: yet mentioned. ~~As~~ We render them less acesc.t by a previous fermentation in y. form of bread. So much for y. assimilation. They are not so readily soluble in y. stomach as most of y. Veg. we have mentioned, especially when made into a paste, but in y. form they have an advantage, becoming not only more nourishing for y. robust, but as I shall afterwards observe for all. The first appearance of y. Solution, is to give a Mucilage; hence they are demulcent. Some call them astringent. I see no foundation for y, as any appearance of y. astringency is owing to y. demulc.t property. So far of these substances in general; we now proceed to speak very briefly of each in particular —

Barley. This is a sweeter grain than most of y. others; its Sugar being less covered w. y. oil. Hence it is y. more common subject of fermentation. It is also less nourishing; not only because y Sugar is least covered; but also because it breaks down into a very bulky meal, on w. acc.t when made into paste it is least solid food, so y. Barley porridge &c. makes a less

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lid & therefore a lighter nourishmt. It is however preferable for decoctions
it renders them less viscid than any of y. farinaceous substances I know.
Millet. This fm its sweetness is manifestly of y. same nature as Barley,
if as large a grain would be used for y. same purposes. As being rather
sweet bit is sometimes used in our puddings.
Rye. This is a sweet grain & from accidents as well as y. it has particular
qualities, being in y. Countrys where it is used y. food of y. poor &
therefore not cleaned accurately from its husks. Hence & fm its sweetness
it is considerably acescent, so more liable to fermt. in y. stomach
produce purgings, wd. people on y. first using it freqtly experience.
Oats. This grain is a stronger nutrimt. than y. former, as y. sweetness
less obvious, y. oil being more intimately blended wd. y. Sugar. This
appears fm more nourishmt. being actually obtained fm y. same quan-
tity of Barley or Rye. It is of a more firm & compact texture & fm being
less soluble than y. Wheat, appears to me y. reason why it gives less nourish-
ment. Oats have been supposed heating & to produce y. Itch &c. It
is absurd to suppose any heating quality in any of y. farinacea. Heart-
burn produced fm its use is given as an instance of its heating quality,
but y. is owing to y. acescent quality comon to it wd. other farinacea
when unfermented. Even wheat itself made into unleavened ~~bread~~
cakes, as y. oats comonly are, produces y. same effects.
Wheat. This is a more perfect grain than any ~~other~~ yet mentioned, it
clearly affords a finer farina than Oats or Barley, for I believe it is scarce
possible to make a Sieve fine enough to hinder its transmission. It
y. grain of most plentiful increase even in this Country, & in Pro-
portion to y. quantity gives a more plentiful nourishment. It is certainly
fittest for bread of any if we except perhaps
Rice. This is more equally both for largeness of produce, quan-

tity of nourishment & goodness; being of a finer farina & more tender texture as is plain by macerating ye. diff.t grains in ∇, for ye. rice swells to ye. largest size i.e. its pores are more intimately divided. Rice is said to affect ye. Eyes; but ye is merely prejudice. Thus it is alledged ye. particular people who live on ye. grain are bleareyed. But if ye. Soil be sandy & not properly covered w.th herbage, & as these people are much employed in ye. field, ye. affection of ye. eyes may be owing to ye. strong reflection of ye. rays of light from ye. sandy Soil. And I am more inclined to ye. opinion as no such effect is observed in Carolina, where it is very commonly used. —

Maiz. This ~~is less~~ contains sweet nesp than any of ye rest, & on ye. acct. is less liable to ferment in ye. Stomach, whence it is of more difficult solution, & ~~instead of b~~ renders ye. body more costive than any of ye. former

Buckwheat. This is a farinaceous seed, but does not belong to ye. same class w.th ye. former. It is seldom employed as food in any other form but as made into Cakes, w.h are heavy & not readily soluble. It is used for some other purposes, particularly to give a thick mucilage for ye. purpose of weaving, for w.h purpose it answers better than Oats, barley or Wheat. I am apt to imagine ye. it is a hard viscid less soluble substance than any of ye. other grains. It cannot be reduced to a fine enough Meal. If we could open it by fermentation, it might be useful in food.

Having thus treated of ye principal species of farinacea, I now come to the preparations. By much ye. most common of ye. is bread, &

bout somewhat of y. form, no nations seem to live. Thus y. Laplanders having no Corn of their own, make a sort of bread of y. dried fishes, of y. inner rind of y. pine, w. seem not so much to be used for their nourishment as for supplying a dry food. For y. mankind seem to have an universal appetite, rejecting bland, slippery, mucilaginous foods. This is not commonly accounted for, but depend on very simple principles. Preparation of our food depends on y. mixture of animals fluid in every stage. Among others y. Saliva is necessary w. requires dry food as a necessary stimulus to draw it forth, as bland slippery ~~[illegible]~~ fluid aliments are too liquid make too short a stay in y. mouth to produce y. effect or to cause a sufficient degree of manducation to emulge y. Liquor. For y. reason we commonly use dry bread along w. animal food; otherwise would be swallowed too quickly. For blending y. oil & of our food nothing is so fit as Bread, assisted by a previous manducation. For w. purpose bread is of like necessity in y. Stomach, if it is proper substance of solid consistence should be long retained. Now I have said y. animal fluids must be mixed w. our food in order to change y. Acescency it undergoes. But liquid foods would not attain y. end, whereas y. solid stimulates & emulges y. glands of y. Stomach. The bread then appears exceedingly proper, being bulky w'out much solidity & firm w'out difficulty of Solution. Altho y. bread here mention is meant only of our own farinacea, yet in diff.t countries others are used as Sago &c

Bread is of two kinds leavened or unleavened i.e. subject to fermentation, or only simple dough made of ∇. Leavened Bread is of 2 kinds 1. as made of dough set to ferment naturally & afterwards employed as a ferment to other dough. 2. Where we employ a ferment of vinous liquors. The first is a precarious uncertain

feration in itself & more especially in its application to a fresh mass of unfer-
ted dough. This method is used in y. southern countries of europe & sometimes
w. us. The yeast used in y. 2d. more preferable method is a more active
ment & less liable to accident than y. latter, altho it is subject to be used too
d. &c. &c. But it has a disadvantage, especially to strangers, from y. disagree-
ble bitterness of hops often tainting our yeast & so y. bread is formd with. The
vantages of leavened bread are to promote assimilation & solution. As to y. 1st
vegetable food becomes naturally more or less accescent & it is y. mode of y.
formes a disease viz: when y. vinous fermentation takes place. Indeed I also
n y. disease may sometimes depend on y. quantity of acid produced. One
ay of obviating y. vinous fermentation is by giving our food somewhat of y. acc-
ent tendency or throwing into y. stomach somewhat to have y. effect. Unfer-
ented or too little fermented bread will cause heartburn, when too acid from
rfermentation it will purge. This then explains y. use of bread & y.
ree of leavening necessary viz: that it should not be so much leavened
to purge, but sufficiently so in order to check y. noxious vinous
mentation. The more accescent grains as barley & rye are more especially
rgative, & y. husks of all grains are somewhat of y. nature, while
hare farina has less of it. Thus then y. finest bread will be least pur-
tive, & y. coarsest most certainly so. So far as to y. assimilation, now
th regard to y. solution. In all bodies there is blended a certain
antity of air, nothing promotes solution more than y. quantity of y.
ch is particularly effected by fermentation. Application of heavy Menstruum
lied &c. would be of little avail, unless assisted by a fermentation going
in y. Stomach, wh. is particularly assisted by bread, wh. besides y. advantage
lidity &c. ~~of its use~~ is of use, as having its own leyther already opened, to prove a
ment to other food. Bread is necessarily in a solid undry form. Hence
less soluble. To prevent y. & at y. same time preserve y. solid dry form
y. purpose of baking. To make y. bread cohere Water is used, & there is no

ter secret in ye. art of baking then ye. quantity of this used, wch. if too great
hes ye. whole concrete into a firm ~~compact~~ insoluble mass. Here we are
d to be deceived as meal, like Clay, will absorb a considerable quantity
still retain its ~~clayey~~ mealy form. This mixture must be made, not wch. gentle
ring, but wch. accurate kneading, in order to make a small quantity
Water suffice. For if gentle mixture were used, it would, like ye Clay
bre mentioned, take in too much Water, before it would cohere. After
mixture is made, we proceed to drying, wch. must be performed
ddenly, all slow drying giving to substances a tough compact
rm, while sudden drying gives a spongy porous texture. This
illustrated in making of paper, wch. slowly dried is of a fine
mpact texture, whereas if taken suddenly from ye. mill, it is porous,
ghing & spongy. Hence we can apprehend what are ye. qualities of
read properly dried; for ye. Water interposed as a Gluten is dispersed
leaves ye. bread in a considerable degree of friability. Its friability
ends also on ye. fineness of ye. meal & quality of ye. ferm.t applied
ndering it fit for manducation & solution in ye. stomach. Hence ye.
ference between new bread & stale, ye. latter being more friable & more
ily soluble is preferable, provided it has got none of ye. putefactive
int. However in strong stomachs this may too be easily dissolved
digested, & therefore in such cases ye. other is to be chosen
Ls to unleavened bread wch. is ~~used then~~ more in this & ye. neighbouring provinces
than in many other parts. This
oarily comes into a firm & tough cake, not having ye. advantage
fermentation to extricate ye. air. On acc.t of ye. closeness of tex,
re it will retain ye. ∇ more tenaciously. Hence ye. reason of ye. diff.
m of unleavened bread, being made out into thin cakes to favour
r drying, wch. ye. more expeditiously it is done, for reasons alrea
assigned, without burning, it is ye. more friable & porous. People deligh

ew unleavened bread have thought of adding Butter to render it more
ible; but fm y. perhaps it is less miscible w. y. watery fluids &
ve in our stomachs, hence as we have said it is more accident
pt to produce heartburn. We also sometimes use bread leavened to
very great degree under y. name of power cakes! These are made
adding a good deal of ∇ to give them viscidity that they may
thinly extended. To obviate y. effects of y. viscidity they are
ndered proportionally more sour, on w. acc.t taken in considera
ble quantity they are purgative. So far w. regard to bread. We now
proceed to y. other preparations of farinacea. These when made into
paste w. ∇, & exposed to a heat capable of coagulating our fluids are
ndered into indissoluble masses; but when they are mixed w. cold
& afterwards exposed to a gradual heat their solution is effected.
is is illustrated by y. preparations of hasty pudding & Water gruel.
first practice is y. more common, probably fm. being more solid
longer retained in y. stomach till it undergo y. proper accident
anges, while y. ∇ gruel is little considered as a food, but rather
a drink, because it passes off quickly. All y. puddings are
alogous in y. preparation to y. hasty pudding. The farinacea
pared by coagulation are of 3 kinds. Pudding, Pancake &
hen paste. Pudding is made of 2 kinds, as made of flour or
ead. The first is coagulated into a firm mass, w. we would
t be able to dissolve unless mixed w. other matters as suet,
y. contrary y. made of bread still remains easily soluble, after
ing drenched w. Water. These are y. common forms of pudding
sometimes they are made of grain as rice, millet &c. In
case y. grain is first boiled & then dried to a proper consis
ce & mixed w. variety of substances. In all of these

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forms, Milk is commonly used, rather than plain ∇, as giving a less
ough consistence. Eggs are also used to obviate acescency as being
of an animal nature. 2. Pancakes. Here somewhat of a firm
ture is required & they are made out into thin plates for
e same reason as ye unleavened water cakes. More ∇ is necessary
order to give them tenacity & butter is added to prevent fermen
tion. 3. Paste. This is sometimes made of fermented bread
ut ordinarily of flour. As it is to be converted into various forms
it is made considerably tenacious. This is done by adding a large
uantity of ∇; by slow drying & other means. It would therefore
e very hard without ye addition of butter & after all it is very in
ustable & apt to produce heartburn & acescency. Perhaps ye is
increased by ye burned butter from a certain volatility in ye flay
nach wch occasions all empyreumatic oils to be long retained
so turn rancescent & acid.

Legumina. These are unctuous & oily & have ye oil intimately
blended wth a saccharine matter so ye they afford a poure &
strong nourishment & ye they do so appear from experts made on
mestic animals. It is observed by ye Servants, cæteris paribus,
ce, living on low grounds where ye legumina grow in plenty
and ye chief food, fatten remarkably, & ye when transported to ye
her grounds they turn lean & weak living mostly on culmiferous
vegetables & sometimes cannot recover, without having recourse to ye
mer diet. A curious reason may be assigned to shew ye ye
legumina are intended for food. The leguminous indeed are designed for food
But ye same ground cannot
produce them above 1 or 2 years wth out being exhausted; whereas
the Legumina have no such effect & interposed between ye culmi
ferous Crops make these be borne easily: & thus there are instances

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that by alternate crops of Culmifera & Legumi: a field has after 24 years
w.out any particular culture been capable to produce y. same crop
of culmifera as at first. This practice is very ancient & therefore y.
Legumina must very early have made a considerable part of
food. Legumina are of a firmer texture & less soluble; their
use therefore should be confined to a hardy robust farmer
They are more flatulent than most farinaceous vegetables of equal y.
kind. This does
not merely depend on y. quantity of saccharine matter w.h appears
to be considerable for y. rich sweet procurable from them, as y.
bad effects of this are obviated by its intimate mixture w.h y. oil,
but on y. great quantity of air y. is lodged in y. texture & w.h
during y. fermentation is copiously extricated & hence they are
improper alim.t for weak stomachs. They are used in two diff.t
states, not only when fully ripe, when they have y. effects just
mentioned, but also when very tender & green, at w.h time
they have not attained y. oil they afterwards gain; approaching
in y. qualities to other Olera & are hardly more sensibly flat
ulent than these; but after all in compensation for y. qualities
properties, their nutrim.t is proportionally diminished.

Nuces Oleosæ. This term is not strictly proper in a botanical
sense; but common language has authorised it. All these consist
of a farinaceous substance by itself; & have an oil in y. corny
condition not mixed as in y. Legumina, but separate & easily
obtained by proper expression. Tho y. oil be separate, yet by trituration
w.h it may be united w.h y. farinaceous substance into a homogeneous
emulsion, & most of y. preparations of y. Nuces oleosæ is food,
should be made on y. foundation. Nuces oleosæ are less flatulent than
y. Legumina & even than y. farinacea, on acc.t of y. copious oil more

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substance & they
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nutritive; but hence more difficultly assimilated. The oil seems to enter y. bloodvessels unchanged in some quantity, & its bad effects appear by suffering y. Lungs especially such as were formerly affected w. some disorder. Let us now proceed to treat of y. nuts here in particular.

Avellana. Hazelnut. This is less oily & has its oil more intimately blended w. y. farinaceous substance, than y. rest; but all y. is to be taken w. distinctions of these nuts in diff. countries, climates & seasons. Thus in y. southern, hotter & drier climates y. oil is more copious & more separate. Before these arrive at maturity they are more watery than y. other nuts. — Chesnut. This I supposed was y. food of y. ancients, & not y. acorn of y. oak w. is scarcely reducible to food. The later Botanists have very justly reduced y. Chesnut w. under y. Genus of Fagus, & y. was probably y. excellent one of y. ancients. Chesnuts in some countries still make y. chief part of food, as in y. fertile plains of Lombardy. They afford a copious nourishment, are somewhat of y. nature of y. Leguminous having y. oil intimately blended & much air being fixed in y. substance & they are y. most flatulent of y. Nuces dulces.

Walnuts. These are more oily than y. former & have y. oil more separate.

Pistachio. This abounds still more in oil & may give a more copious nourishment; but it is scarcely possibly to separate y. tenacious acrimony of y. tree from them.

Almonds. These are y. most agreeable of y. Nuts, but are no where produced in such quantity as to afford a food. They are divided into bitter & sweet & y. oil is said to be obtained equally sweet from both. And indeed it appears y. bitter & sweet Almonds are only varieties, w. has made it doubt whether y. bitter almond should be used in food. The farina & oil of it are exactly y. same, but

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trap where they
necessary. only men

its bitter makes it suspicious, as ye. Laurel bitter afterwards to be mentioned may be procured from it & as it is a poyson to many animals. Some men indeed use them w.t Impunity, but I think it a dangerous practice. They are however deprived of ye. acrimony by heat & hence are used in baking; but we should not from ye. infer that ye. use of them when fresh is allowable ——— Cacao Nuts. These contain ye largest proportion of oil, & hence are hardly used without preparation; by mixing ye. oily w.t ye. farinaceous parts, & on ye. accuracy of ye. mixture ye. quantity of nourishm.t depends, as well as its easiness of digestion. The chocolate made in Portugal & Spain is not near so well prepared as ye. english, depending perhaps on ye Machine employed there viz. ye. double cylinder ~~employed there~~ w.h seems very ill calculated for exact triture. If perfectly prepared no oil appears on ye. solution. London chocolate gives up no oil like ye. foreign & this also may in some measure depend on ye. thickness of ye. ~~solution~~ preparation. Solution requires more care than is commonly imagined. It is proper to break it down & diffuse it thoroughly in cold Water by milling w.h chocolate stick. If heat be applied it should be done slowly; for if suddenly ye heat will not only coagulate it; but separate ye. oil & therefore which boiling after it is dissolved is hurtful. Chocolate is commonly required by people of weak stomachs; but commonly rejected for want of proper preparation. When properly prepared it is easily dissolved & an excellent food, where a liquid nutrient vegetable one is required, is less flatulent than any of ye. farinacea — Olives. These might be allowed to ye. head of fondism.t & they are even only used pickled in those Countries where they are native, & their disagreeable bitter is by ye. means corrected. I only mention them here on acc.t of ye. oil they afford so copiously —

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I formerly started a question about ye. use of oil. Viz: Whether oil was necessary for nourishmt. or only for supplying ye. great quantity of oil in ye. Egyptian. Tho ye. latter opinion be granted, yet I imagine oils are also directly nutritive, being copiously mixed & intimately blended wth. ye other parts of our alimt. & thus constituting a part of ye. proper nutritious fluid. They are also necessary for assimilation; for ye. acrimony of ye. fructus acido-dulces would be difficultly assimilated without their use. ye. use of oil & butter is almost as universal & as necessary as that of ye. farinacea. They give an alimt. wh. approches nearest to ye. nature of animal food. They give a more dense elastic blood & probably to a more putrescent one than their viscidity also remains in some degree in ye. bloodvessels on wh. acct. we shall mention them under ye. head of medn. Dr. Russel in his nat. history of Aleppo tells us, ye. in certain seasons when they use a great quantity of oil there, they were then disposed to somewhat of fever wth. remarkable infarction of ye Lungs, wh. symptoms wear off on retrenching ye. use of oil. Considered as aliment oil is difficultly perspired; ye. meaning of wh. shall be afterwards explained. These are ye. properties in general of our oily nourishment, whether oil or butter. Here a question arises why for ye. northern or southern countries are supplied wth. ye. most agreeable substance of this kind. With regard to butter: it always has a quantity of animal mucilage mixed wth. it & hence it is easier miscible wth. Water. But hence altho fm ye. mucilage it receive consistence & somewhat of viscibility wth. V & hence more easily digested, yet fm ye. very mixture it is more rancescent & does not keep so long fresh as oil & hence produces disorders in ye. prima via. In ye. southern countries oil is procured little disposed to rancescency & therefore where it can be used perfectly fresh it is not so apt to produce rancescent disorders as butter. But here it is not of equal advantage, & I never saw any in ye. Country

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but had some degree of rancidity & therefore we ought not in any case prefer ye. imported oils to good fresh butter. However as fresh oil is certainly eligible & as almonds, whose oil is better than ye. of ~~almonds~~ olives, afford it only in inconsiderable quantities I think we ought as we have native seeds &c. will afford a pure oil in plentiful large quantity to endeavour to procure it from them.

Drink. The general use of drink is to supply fluid to facilitate solution, in consequence of ye. to expede ye. evacuation of ye. stomach & promote ye. progress of ye. aliment through ye. intestines. For by ye. contraction of ye. longitudinal fibres of ye. stomach ye. pylorus is drawn up & nothing but fluid can pass, &c. by its bulk makes a hurried progress through ye. intestines & so determines a greater excretion by stool, as less then can be absorbed by ye. lacteals. Hence a large quantity of common ∇ has been found purgative, & cæteris paribus ye. alimt. &c. is accompanied w. ye. largest proportion of drink makes ye. largest evacuation by stool. Here a question has arisen about ye. feculent part of ye. alimt. is first remarkably collected. It is commonly thought to be in ye. great guts but undoubtedly it often begins in ye. lower part of ye. Ileum, especially when ye. drink is in small proportion & when ye. progress of ye. alimt. is slow, for when ye. contents of ye. Guts are very fluid they are quickly pushed on & reach ye. great guts before they deposit any feculency. Another effect of drink is to facilitate ye. mixture of ye. lymph refluent from every part of the System w. ye. Chyle. In ye. bloodvessels where all must be kept fluid in order to proper mixture drink encreases ye. fluidity & gives tension by its bulk without concomitant acrimony or too much elasticity & so strength to oscillatory motion. Hence drink contributes to sanguification, as commonly food given too dense a nutrimt. to be acted upon by ye. solids. Hence also we can see how drink promotes ye. secretions. Blood are ye.

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effects of drink in general, but what I have said must be taken co. some
Limitations, for ye. more liquid ye. food ye. sooner it is evacuated &
less nourishmt. is extracted. Hence drink is in some degree opposed
to nourishmt. & so ceteris paribus, those who use least drink
are most nourished.—

All ye. effects of drink abovementioned are produced by simple water,
it may be said ye. other liquors are fit for drink in proportion
ye. V they contain. Water when used as drink is often impreg-
nated co. vegetable & farinaceous substances, but as drinks these
impregnations are of little consequence: they add indeed a little
nourishmt. but this is not to be regarded in a healthy state. Some-
times we impregnate V co. ye. fructus acido-dulces & then indeed it
requires other qualities of considerable use in ye. animal economy.
All drinks may however be reduced to 2 heads 1. pure V, or where ye.
additional substance gives no additional virtue 2. into ye. fermented
of ye. 1st. we have already treated & ye. latter have not only ye. qualities of
1st, but also properties peculiar to themselves. Fermented Liquors
are more or less acid & poignant to ye. taste & better calculated to
quench thirst. Thirst may be owing to various causes 1. To defect
of fluid in ye. system co. occasions a scanty secretion in ye. mouth
fauces & stomach. The dryness of ye. mouth & fauces will also in ye.
case be encreased by ye. continual exposure to flux & reflux of ye. evap-
orating air. 2. Thirst depends on a large proportion of solid vi-
d food. 3 On alkalescent alimt. especially if it has attained any
ty of ye. putrefactive taint. 4. On ye. heat of ye. system but ye. seems
operate in ye. same manner as ye. first cause, giving a sense of
dryness from its dissipation of ye. fluids. The fermented liquors are
peculiarly adapted for obviating all these causes, stimulating ye.
mouth, fauces & stomach to throw out ye. saliva & gastric liquor by
their poignancy; by ye. acescency they are fitted to destroy alkalescent

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acrimony & to quench thirst for y. cause; by fluidity they dilute vicid
food tho here indeed they answer no better than common Water. In two ways
they promote Evacuation by stool & progress through y. Intestines 1. by
their fluidity & bulk 2. By y. acescency &c. uniting &c. y Bile forms y.
peculiar Stimulus formerly mentioned. Carried into y. Blood Vessels in
so far as they retain any of y. saline nature they stimulate y. ep.
retories & promote urine & sweat correcting thus alkalescency not
only by mixture, but dissipitation of y. degenerated fluids. Many Phys.
cians in treating of fermented Liquors have only mentioned these qua.
ties, rejecting y. nutritious virtue &c. certainly ought to be taken in
by expediting y. evacuation by stool, they make less of y. nutritious part
y. alim.t to be taken up & by stimulating y. excretories make y.
nutritious parts to be a for shorter time in y. system. All these & many
more effects arise from fermented Liquors. Their acescency consid.s promotes
disease of acescency, by encreasing y. of Vegtables acting as a ferm.t
so producing flatulency, scurvy, Cholera &c. so y. &c. veg. alim.t as
the drink is necessary, y. most innocent is pure Water, & it is only
animal food y. fermented Liquors are necessary. In warmer climates
fermentata would seem necessary to obviate all alkalescency & heat. But
should be considered y. tho fermented Liquors contain an acid yet
they also contain alcohol, &c. tho it add a stimulus to y. Stomach
extremely hurtful in y. warmer climates & wherever alkalescency
prevails in y. system. Nature in y. climate has given men an
appetite for Water impregnated &c. acid fruits e.g. Sherbet, but y.
use of y. needs caution, as in these countries they are apt to
run animal food using too much of y. Veg. & often thus causing
dangerous refrigerations, Cholera, Diarrhoea &c

Of Varieties of fermented Liquors I shall only mention here y. chief heads on
which these varieties depend. 1. They are owing to y. quality of y. subject as more

or less viscid upon its capacity also of undergoing an active fermentation altho perhaps y. more viscid be y. more nutritious. Hence y. difference between Ales & Wines: by y. 1st we mean fermented Liquors prepared from farinacea by y. 2d from y. fruits of plants. It depends on 2. the acerbity, acidity, nature & maturation of y. fruit 3. The fermentation is progressive being at first active & ~~progressive~~ rapid, detaching y. fixed air or Gas sylvestre at y. same time acquiring more acid than before. The qualities of flatulency & acidity remain for some time, but as y. fermentation goes on, y. liquor becomes more perfect, no air is detached & alcohol is produced, so y. fermented Liquors differ according to y. progress of fermentation & have diff.t effects on y. system. When fermentation is stopt before it comes to Maturity, tho naturally it proceeds in y. way yet by addition of new ferm.t it may again be renewed tho it. a rabid intestine motion. —

Condimenta.

Condiments are such substances as are taken in to our food to correct its bad tendency, or give it more agreeableness to y. Stomach. They are of diff.t kinds 1 Aromata. There are certain acrid substances we take in to give more taste to our alim.t For tho I said our alim.t should be bland, yet y. system requires it should be rapid. They obtain fm y. Aromata, to. strictly are such as are pungent, to. some degree of fragrancy as Cinnamon, Cloves, Nutmeg, Mace, Pimento &c. are y. produce of y. warmer climates. Analogous to these are in Europe umbelliferous Seeds, Anise, Carraway, Coriander & y. sweet herbs. All these stimulate y. Stomach & promote y. peristaltic motion are antispasmodic, taking off spasms arising fm y. flatulency of our food, antiseptic, moderating y. putrid tendency of our alim.t in y. Intestines.

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vally esteem & lead
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rom these qualities they are fitly conjoined to our veg: alim.t stimulating
stomach, promoting mixture & y. assimilation of y. animal fluids, & obviating
effects of flatulency. They ought properly only to be used in those Coun-
ies where they are produced, because on acc.t of y. heat people there
se chiefly on Veg. Diet. They are introduced here unfitly & as a part
luxury, as any antiseptic Virtue they have, would be overcome by Vinegar &c
There are certain acid plants y. produce of our northern Climates,
here animal food is indulged most freely & most safely; & where
being insipid is fitly conjoined to those acid substances as con-
iments e.g. the cress kind, radish, horseradish, mustard, Cresses & indeed
l y. Siliquosa or Tetradynamia. These give taste to insipid alim.t
timulate y. stomach & increase y. peristaltic motion, they have
considerable antispasmodic Virtue, are manifestly powerful
uretics & diaphoretics, stimulating y. excretories to throw out al-
alescent matters. Hence they are fitly conjoined to animal food.
he garlic tribe have y. same Virtues, stimulate y. stomach, are diu-
tic & diaphoretic & are used in our animal food as Condiments.
hese are y. Condiments taken from recent vegetables. There are also others: Salt,
Vinegar & Sugar.

Salt. This is y. most useful substance as a vapid, is most univer-
ally used & least apt to pall, but beyond y. quality I am at a loss
what to say, as its effects are not yet well explained by physicians.
It is said to be an antiseptic but this seems contradicted by observing
that it is often used to vegetables & y. carnivorous animals are poi-
soned by it, where its antiseptic quality would be most necessary,
while y. graminivorous seem fond of it & y. husbandman often gives
it to his Cattle & sure here it cannot act by its antiseptic quali-
ty. Dr. Pringle says y. a small quantity of Salt is septic & a
large one antiseptic; but here I think y. Expt was not accurate

as y. shall be employ
salt. How y. con
conceived viz: by
y. acid &c. dissolve
y. a true com
ting for y. Phe
superior appetite
of y. body as we
been found to b
concerning it possible
be produced from
will recall for a
not yet been know
Vinegar. This
or wandering, &c.
neglected, & we m
grateful task.
As an antiscorbutic
& hence in degree
It is required when
affections, & present ac
it may have
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recent Dey.
Questions. such ca
trace some matter
mentation, &c. m
affection
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and &c. one

y. Salt he employed was y. common table Salt wd. is far frm being a pure comon
lt. How y. impure salt acted in promoting putrefaction may be easily
neeived viz: by y. superabundant alkali or earth of y. Salt absorbing
acid wd. should have prevented putrefaction. Till once it be ascertained
a pure common salt be septic in a small quantity, we forbear accoun
ing for y. Phenomenon. Common Salt stimulates y. Stomach
ocites appetite & promotes secretion of gastric Liquor. The nature
y. body as we take it wd. our alim.t is little understood. As it has
een found to be septic we are apt to run into extremes, have
oncluded it produces Scurvy frm y. power. Altho Scurvy is apt to
e produced frm salted meats, yet expts evince y. y. same effects
ill result frm animal foods alone long continued, & Salt alone has
ot yet been known to produce y. disease

Vinegar. This contains various substances & among y. rest a nutritious
r saccharine, wd. however, in accounting for its effects, may be entirely
neglected, & we may only consider it as a Cond.r — As such it gives a
eratful taste to y. Alim.t stimulates y. Stomach & excites appetite.
As an acetous ferm.t it determines y. acetous fermentation in foods
& hence in degree is of use even wd. Vegetables themselves
It is enquired whether it is hurtful as an acid & avoided by those who are
ffected wd. ~~recent~~ accent Vegs.? In large proportions, like all other Acids
it may have bad effects, & therefore in such quantity ought to be
voided by them. Will it produce Spasm, flatulencies &c. like
ther recent Vegs.? It may, for y. acetous fermentation is never con
ducted wd. such care as y. vinous & there is comonly in Vinegar a
accharine matter remaining, wd. has not yet undergone its first fer
mentation, wd. may be excited in y. Stomach & produce all its bad
ffects. Its antiseptic Virtue is proved by expts & therefore it is pro
perly used wd. animal food. Its ~~anti~~ Virtues however as an antiseptic

we actually prick
Lemon Juice as a
as of quantity of
Vinegar is here
Juice and however
besides its qualities
But in my opin
is a much safer
proper cond. & b
& vary g. is inc
scurvy in Veg: as
has not been tried,
latory organs, it
cine "a more inv
Suggest. This is
Tafford & Stone
as a food, but
in such quantity
repetition. If
veg. & Stone is
it encreases g. quan
qualities or hinder
acido-dulcis or
figs &c. It might
animal food. If
antiseptic, being
than commonly
have given about

e not very great. Other acids are used w.th animal food as cond.t as Juice of
Lemons, w.th as acids is therefore less liable to active fermentation; but
as y.e acidity differs very much in diff.t Lemons, y.e same quantity of
Vinegar is more seldom found to have bad effects than of Lemon
Juice, w.th however is more universally preferred to y.e Vinegar, w.th
under its qualities formerly mentioned is often very foul & disagreeable.
But in my opinion if due attention is given to y.e quality of y.e Vinegar it
is a much safer Cond.t Gruber proposes y.e marialic acid as a
proper cond.t & has proved its use in several alimentary purposes,
& says y.e is incapable of fermentation itself & preventing acc.
ency in Veg: as well as putrescency in an. substances. This however
has not been tried, & as it is a substance unconquerable by our assimi
latory organs, it would seem rather to be considered as a medi
cine & never introduced as a Cond.t —

Sugar. This is one of y.e principal ingredients in Veg: aliment &
affords & pure & copious nourish.t but it is also freq.ly employed
as a cond.t but cannot be used for y.e same length of time &
in such quantity as common Salt, as its taste soon palls on
repetition. It may likewise be considered as antiseptic, & as a
Veg: substance is capable of all y.e effects of accident Veg: With Veg:
it encreases y.e quantity of Nutrim.t but does not I believe correct y.e bad
qualities or hinder fermentation. It is less actively fermentable than y.e
acido-dulces or Rosa, more so than y.e dried juice of fruits, as
figs &c — It ought therefore to be used sparingly w.th Veg. & most w.th
animal food. If not over expensive it might be used w.th y.e latter as an
antiseptic, being more sicced & less liable to be decomposed by solution
than common Salt. Since Sugar came to be commonly used, disputes
have arisen about its wholesomeness. I have already laid y.e foundation

Judgm.t on y.e Subject & many faults have been ascribed to it wrongly
It may indeed by its acrimony be troublesome in y.e primæ viæ, but
to expect prove its bad consequences in y.e blood vessels. It has been said
to spoil y.e teeth. In sensible teeth it may perhaps by what adheres about
them turning acid, corrode them; but faults of y.e kind are oftner imputed
to it than it deserves; for raisins are now acrescent & yet whole nations
eat them w.h. Impurity, & y.e mischiefs of eating of Sweets are wrongly
imputed to y.e Sugar. When arts were in a languishing state in Europe,
men lived much on animal food & then Scurvy was freq.t but now while
Veg. are more used it is a rare disease, appearing only in long Voyages
or long Winters where Veg. food is not to be found. Putrid fevers & Epidemics
are also less freq.t as may appear from Sydenhams & Pringles observations
w.h I impute to y.e more freq.t use of Sugar. Having now spoke
of Sugar in general we come to particular Sugars
Coarse Sugar is most acrescent, most actively & readily fermentable w.h is also
increased by its viscidity & other Sugars y.e finer & purer they are have
less & less of these qualities. From y.e qualities abovementioned coarse
Sugar is most laxative & most productive of y.e disorders arising
from an active fermentation. Fine Sugar never turns drier or
ceases to be nutritious, but is however always somewhat acrescent
The Lime employed never enters into y.e composition of y.e Sugar
only renders it less acrescent & less actively fermentable. Having men
tioned y.e Cond.t we now come to Aliments preserved by common Salt
but as animal food only is comonly preserved by common Salt I
leave it over untill we come to these & speak next of
Vegetable Alim.t preserved by Sugar. This preparation is so perfect
that y.e y.e Saccharine y.e y.e sacharine is intimately & every where im
bued into y.e pores of y.e Veg. substance, so y.t y.e portions of y.e kind may
be considered as entirely sugar, participating of none of y.e qualities

of y. Sp. appetite
be said of Vinegar
stence or not by
may be considered
indeed be employed
go as far as Vin
Iron wire joined
have said before

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guess no afraid
not so clear as
Doubt y. Pernicious
wen fall by in the
cumulations
vencia, yet in
This accumulation
short intervals
to give vent
Necessity for
They are used to
their being able to
meal, boiled fresh
animals y. varied
from all y. we
forever
in y. stomach
in some
become

of ye. Veg: excepting those of ye. acrid kind as Ginger. The same may be said of Vinegar preserves as Vinegar is applied only to insipid substances or wch. by boiling or soaking become so, & solutions of ye. kind may be considered as so many sponges containing Vinegar & may indeed be employed to increase ye. flavour of food & as antiseptics with so as far as Vinegar itself; only wch. regard to ye. small quantity of aromata joined wth. ye, their effects may be known from what we have said before —

Animal Food

We formerly distinguished animal from Veg: food by saying ye. it required no assimilation but only solution & mixture. But ye. is not so clear as has been commonly imagined. What gives rise to ye. doubt is ye. Carnivorous Animals live on ye. wout any Veg: mixture or salt, by wch. they are even prejudiced; living long wout putrid accumulations wch. tho for a short time ~~might~~ they might produce little inconveniencies, yet in ye. course of life would certainly produce bad consequences. This accumulation is obviated by particulars in ye. oeconomy as short Intestines, whereas in ye. phytivorous long Intestines are given to give rise to putrescency. Again ye. carnivorous animals are exposed to putridity from ye. irregularity, taking in V in small quantities &c. they are said to be of quick operations but ye. is contradicted from their being able to bear long abstinence; being gluttes to day wch. a fast next, & starved perhaps for several weeks after, wch. would be in other animals ye. sure means of pushing putrescency to ye. greatest degree. From all ye. we must suspect something in carnivorous animals to prevent putrefaction. Here let me offer a conjecture viz. That ye. food in ye. stomach of carnivorous animals suffers a decomposition to the degree becomes acid. This appears probable from ye. change wch. directed

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texture as on 4. f
food is 4 soluble
Dr. Robinson relates
would know 4 Ani
mal food equals 4. f
degree than Vegetable
wholesome & 4. f
& viscidity taken
old 14. 4 prudence

dipated animal substances undergo, then broths becoming in time
scent. Besides it has been said ye. an acid is always found in ye.
mach of these animals. If it be really so, it can proceed from no
her source but decomposition. However in accounting for effects
animal food on ye. human body we may neglect this & conin
r ye. diseases thence arising to proceed from putrescency, for no man
has been proved from experiy can bear animal food alone, wout
ucca, even for a few days. Putrescency takes place in ye. Stomach
Intestines in ye. 1st producing Nausea & thirst wh. often bear enlis
viated by ye. acid of Veg: conjoined wh. it. In ye. latter producing
ol. plurging, Cholera & Dysentery from putrid Exhalations. Next as to ye.
lution of animal food, this tho seemingly of greater cohesion
of more easy solubility, than Veg: However I don't mean by ye.
quicker; but a more entire solubility, for very firm animal sub
tances are extracted & dissolved in ye. human body, & ye. firmest, as
nes, in stomachs similar to ye. human, tho at ye. same time I
n convinced ye. Veg: wh. are not dissolved at all have yet ye. Juices
re quickly extracted than animal food & pass off sooner, for
uness of solubility does not depend so much on ye. firmness or
ture as on ye. Viscidity of ye. Juices. Thus ye. more young & succulent
od is less soluble than ye. old; beef ye. Veal, Mutton then Lamb &c. &
r. Robinson relates ye. a Gentleman who used to take an evening poun
ield throw up Veal unchanged, while of Beef there were no remains. Ani
al food excites ye. fever mentioned as consequ. on digestion in a greater
gree than Vegetable, giving a greater stimulus to ye. Stomach, & so to the
holesystem & ye. difference of animal foods depends on ye. putrescency
viscidity taken together. Thus in young food being more viscid than
d, ye. less putrescent is yet less soluble. Animal food differs also as to

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perspirability or passing of ye. last fermentation. Sanctorius found Milton most perspirable & Keill the call Oysters ye. least, so ye. animal foods differ in ye. perspirability according as they approach nearer or recede farther in ye. Nature from these.—

Comparison of Animal & Vegetable food

With regard to ye. difference in ye. stomach. What we have said of ye. decomposition & acescency of animal food never comes to a morbid, but ye. disease is always on ye. side of putrescency, wh. degree however seldom occurs, except when animal food has been repeated in too a great a proportion or too highly either for necessity or delicate luxury. The acescency then of veg. aliments more freq. & ought more to be attended to than ye. alkalescency of animal f. last even in weak stomachs is seldom felt whilst acescency affects much both ye. stomach & system. (a) With regard to their difference of solution: Heaviness, as it is called, is seldom felt for vegetables, except in tough farinaceous paste, or a rare surfeit, while ye. heaviness of animal food is more freqly noticed, especially when in any great quantity. Difficulty of solution does not depend so much on firmness of texture, as man is more oppressed for fish of all kinds than firmer substances, but on viscidity & hence is more freq. in animal food & especially in younger animals. All wh. makes it evident ye. both solution & ye. passage of ye. food from ye. stomach more owing to viscidity than firmness (b). With regard to mixture there is no instance of difficult mixture in Veg. except in veg. oils while animal foods for both viscidity & oiliness, especially ye. latter fats, are refractory in ye. respect. I don't know whether ye. whole ye. difference of animal & Veg. foods might not be referred to ye. head of mixture for Veg. food continues long in ye. stomach giving little

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ving chamber
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strong themselves,
of less consequence
human reason
y. y. use of fruits

Stimulus. Now ye. system is affected in proportion to ye. extent of this
Stimulus, wch. is incomparably greater from ye animal viscid oily food, than
from ye. Veg. firmer & more aqueous. However let me observe here that
there are certain applications to ye. Stomach wch. have a tendency to
bring on ye. cold fit of fever, independant of stimulus, merely by ye. refri-
geration & this often arises from veg. as we see in those hot Countries
where Intermittents prevail they are oftener induced from a surfeit
of Veg: food than animal. A proof of this is ye. when one is recovering
from an Intermitt.t there is nothing more apt to cause a relapse, than
cold food, especially if taken on those days when ye. fit should re-
turn & particularly acescent fermentable Veg. as Sallad, Melons, Cucumbers
in Acido-dulces &c. wch. are in my opinion those fruits wch are ye.
most common cause of Epidemics. Therefore when an Intermitt.t
is to be avoided we shun veg: Diet & give anim: food, altho ye.
Stimulus be greater, & ye. among others is a proof ye. fever depends
very much on ye. cold fit. Upon ye. whole, in attending on these
heads of Assimilation, Solution, Mixture & Stimulus we shall
be able to judge of ye. choice of food wch. regard to ye. Stomach. 2.
Except as to ye. Intestines. When ye. putrescency of anim: food has
gone too far, it produces as I have said an active stimulus caus-
ing diarrhoea, dysentery &c. But these effects are but rare whereas
from veg: food & its acid, wch. united wch. ye. Bile forms a pretty
strong Stimulus, they more freqtly occur, but luckily however are
less consequence if ye. refrigeration is not very great. In ye. ann
-ual season when there is a tendency to dysentery if it is observed
ye. use of fruits brings it on, it is rather to be deduced from their

then stimulating
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these experts. effects
scency. cannot be
Anim. food alone will
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fluids would be alth
brim. these diff. foods
solid. jelly y. other
mal is ever converted
greater proportion
than vegetables. It
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in y. world. &c
This is not properly

than stimulating ye. Intestines. As to ye. effects on anim: & Veg: food on stool.
Wherever neither putrefaction or acidity have gone for a great length, Jah
ledge ye. veg. food gives a greater proportion of feculent matter & when
evacuated by ye. Stomach & Intestines is more apt to irritate & produce
slow Belly & costiveness than animal stimulating food, ie. before
it comes to ye. great Guts, where stoppage is made, has attained a
putrefactive tendency & gives a proper stimulus, & ye. those who are
costive for Veg. food when they have recourse to anim. are in ye. ne
need better. 3. Effects of animal & Veg: food in ye. blood vessels.
They both give a blood of ye. same kind of diff. quality. Animal food
gives it in greater quantity, being wholly as ye. expression is, con
vertible into Succum & Sanguinem & of easy digestion; whereas ye. veg.
is more watery & contains a portion of unconquerable saline matter
ye. cause it to be thrown out of ye. body by some excretion. Animal
food affords a more dense stimulating elastic blood ye. veg. stretching &
giving a greater resistance to ye. solids & again exciting ye. stronger action
hath been supposed ye. ye. acrimony of veg: food is carried into ye. blood vessels &
there exerts its effects, but ye. tendency of anim: fluid is so strongly alkaline
they ye. I cannot be persuaded an acid acrimony ever existed in ye. blood.
Anim: food alone will soon produce an alkalescent acrimony, & if a person who
is entirely on Veg: were to take no food for a few days the acrimony of his
fluids would be alkalescent. We are next to take notice of ye. quantity of nu
trim. these diff. foods afford. Nutrim. is of 2 kinds ye. first repairs ye. waste of ye.
solid fibres, ye. other supplies certain fluids, ye. chief of ye. fluids is oil. Now as ani
mal is easier converted & also longer retained in ye. system, & as it contains a
greater proportion of oil it will afford both kinds of nutrim. more copiously
than vegetables. A proof ye. correlative is produced, for animal food is ye. more in
England there are more fat people than in any country of twice ye. extent
in ye. World. 4. & Lastly as to ye. diff. degrees of perspirability of these foods
it is not properly determined. Sanctorius constantly speaks of mutton as ye.

proof, perceivable of
consequence of y. diff
tribes live on. Y.
of digestion perspir
vegetable. Whether
saline juices deter
anism: food is more
tion. Hence Sandoric
exhaustion in y. body
perspiration in y. re
to his usual weight
of animal food to cons
than animal food.
Hence I cannot accou
Whether man was
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clude nature has
structure of y. human
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carnivorous
the stomach a double
both herbivorous
But I would trust to
visions on these accou
the forgiveness and
from prejudice of opinion
y. than

most perspirable of all food & of Vegetables as checking perspiration. This is a conse-
quence of ye diffs. stimulus those foods give to ye stomach, so ye persons
who live on Veg: have not their perspiration so suddenly excited. In time
of digestion perspiration is stopt from whatever food, much more so from cooling
vegetables. Another reason why Veg: are less perspirable is because ye aqueo-
lene juices determine them to go off by urine, while ye more perfectly mixed
anim: food is more equally diffused over ye system & so goes off by perspira-
tion. Hence Sanctorius's acts may be understood, for Veg: food is not longer
retained in ye body; but only takes ye course of ye kidneys. Both are equally
perspirable in ye respect, viz: ye person living on either returns once a day
to his usual weight & if we consider ye little nourishmt. of Veg: & ye great tendency
of anim: food to corpulency we must allow ye Veg: to be more quickly perspired
than animal food.

Here I cannot avoid taking notice of ye Question that has been so often handled,
whether Man was designed for anim: or Veg: food? This question has been
managed unfairly, for in all other animals they take it up as a fact, by observing
of ye animal ~~[illegible]~~ chuses; but they tell us Man's reason leads him astray.
In my part I conceive there is little in ye argumt. for if in those countries
where no prejudice prevails I see people live promiscuously on both, I con-
clude nature has designed both for them & indeed when we examine ye
structure of ye human body, ye teeth, stomach & intestines we find nature
has designed him for a mixed aliment. He has dentes incisivi & canini like ye
carnivorous & a double row of grinders like ye granivorous. His stomach approa-
ches ye of ye carnivorous animals & his intestines are a medium between
both, not so long as ye phytivorous & not so short as ye carnivorous animals.
But I would trust to instinct producing practice abstracted from artificial opi-
nions & in these cases we find ye use of animals & Vegetables promiscuously.
Pythagoreans & ye modern sectators ye Bramins live on Vegetables merely
from prejudice of opinion, & we need not heed those mythologists who tell us
man at first lived on Vegetables, as ye accts. are not founded on fact. They

are opposed by their
yet for [illegible] when
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more ancient [illegible]
men [illegible] should also
the proper [illegible] themselves
tioned are exactly [illegible]
their [illegible] nature. Now
as [illegible] a livelihood
for [illegible] &c. &c. on
Diet [illegible]
therefore [illegible] Man is
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They [illegible] called
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indeed [illegible] who live
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tion animality &c.
1. Shall [illegible] which
in great proportion
It is a common [illegible]
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ing [illegible] but also given
to [illegible] System is kept under
their [illegible] to a certain
of [illegible] System &c. &c. al

re opposed by this y. many nations still in a rude state & whom luxury has not
et perverted, who are so far from living on veg: food y. from climate they are obliged to
e poretty entirely on animals & y. state of y. Hunter & Shepherd is more simple &
ore ancient y. y. of y. Farmer or Gardener. With regard to y. effects of these food on
en I should allege y. there are no persons who live entirely on Veg. & y. Pythagoreans
goreans themselves eat milk, & those who do so mostly as y. Pythagoreans abovemen-
ed are weakly, sickly & meagre, labouring under a constant Diarrhoea & several
r Diseases. None of y. hardy, robust laborious live on them but chiefly such
gain a livelihood by y. exertion of y. mental faculties as in y. E. Indies, Tac-
& Brokers, & y. method of life is now confined to those hot climates where Veg.
t co-aliconvenieney may be carried to y. greatest Excess. Tho it be granted
efore y. Man is intended to live on those diff. foods promiscuously yet
veg: should be in very great proportion. Thus y. Laplanders are said to
entirely on animal food; but y. is contradicted by y. best acct., for besides
so y. besides Milk, co. they take sour to obviate y. bad effects of anim: food,
e use also Salla, Menyanthes & other plants copiously. So there is no Ex-
nce of any nation living entirely either on Vg. or anim: food, tho there are
ed some who live particularly on one or y. other in greatest proportion
y. cold countries eg. y. Inhabitants live chiefly on anim: food on acc. of y.
r of y Season, their small perspiration & little tendency to putrefaction
more importance is y. following than y. former question viz. In what propor-
animal & Vg: ought to be mixed
shall observe y. when I speak of anim: & vg: foods here I mean these foods given
reat proportion. To go on then: animal food gives most strength to y. System.
is a known aphorism of Sanctorius y. Bonduss add it robur co. may be explained
om y. impletion of y. blood vessels giving a proper degree of tension for y. perfor-
nce of strong oscillations. Now anim. food not only goes a greater way in supply
fluids, but also gives y. fluid more dence & elastic. The art of giving y. utmost strength
System is best understood by those who breed fighting Cocks. These people raise
Cocks to a certain weight, co. must bear a certain proportion to y. other parts
System & co. at y. same time is so nicely proportioned, as y. on being a few

Cuneus of it ye. strength is very considerably impaired. Dr. Robinson of Dublin has observed yt. ye. force & weight of ye. system ought to be determined by ye. ~~heart &~~ largeness of ye. heart & its proportion to ye. system; for a large heart will give large blood vessels while at ye. same time ye. Viscera are less, particularly ye. Liver, wch. last being encreased indize a greater quantity of fluid is determined into ye. cellular texture & less into ye. ~~sanguiferous system.~~ sanguineous system. Hence we see how anim. food gives strength by filling ye. sanguiferous vessels. What praise we now bestow on Locke ye. Ancients did on ye. Athleta by proper nourishmt. bringing them to a great degree of strength & agility. It is said ye. Men were at first fed on figs, wch. is a proof of what we have formerly said of ye. nutritious quality; however in ye. respect they were soon found to fall short of animal food & thus we see that men in some measure will work in proportion to ye. quality of their food, ye. english labourers more than ye. scotch & wherever men are exposed to hard labour the food should be animal. Anim. food although it gives strength yet it loads ye. body & Hippocrates long ago observed yt. ye. athletic habit by a small encrease was exposed to ye. greatest hazards. Hence it is only proper for bodily labours & entirely improper for mental exercises, for whoever would keep his mind acute & penetrating will incline rather on ye. side of veg. food. Even ye. body is oppressed in wch. anim. food & a full meal always produces dulness, laziness & yawning, & hence ye. feeding of Gamesters, whose mind must be ready to take advantages is always performed by avoiding a large quantity of anim. food. Farther wch. regard to ye. strength of ye. body, anim. food in ye. first stage of life is hardly necessary to give strength, in manhood when we are exposed to active scenes it is more allowable, & even in ye. decline of Life some proportion of it necessary, to keep ye. body in vigour. There are some diseases wch. come on in ye. decay of Life, or are at least aggravated by it, among these I mean ye. gout. This when it is in ye. system & does not appear wch. inflamation

in y. [illegible]
&c. [illegible]
is necessary upon
Amount for [illegible]
produces [illegible]
Stomach &c we [illegible]
water perspiration.
soon [illegible]
early [illegible]
y. dec[illegible]
his a[illegible] life [illegible]
therefore [illegible] is to be [illegible]
to all [illegible] inconvenience
[illegible] in mental
[illegible] an excess of
mal [illegible] y.
much [illegible] to y.
disease [illegible]
other [illegible]
where y. are obliged
for it generally [illegible]
an excess being [illegible]
unlucky [illegible]
to prevent [illegible] it [illegible]
a cure [illegible] performed
rious [illegible] could be [illegible]
danger, [illegible] opinion, [illegible]
Except [illegible] us consider

in ye extremities, has pernicious effects there, attacking ye Lungs, Stomach, head
&c— Now to determine ye to ye extremities a large proportion of anl food
is necessary, especially as ye person is commonly incapable of much Exercise.
Animal food although it gives strength is yet of many hazards to ye System, as it
produces plethora & all its ill ~~qualities~~ consequences. As a Stimulus to the
Stomach & so to ye whole system, it excites fever, urges ye Circulation & pro-
motes perspiration. The system however by ye repetition of these stimuli, is
soon worn out & a man who has early used ye athletic diet is either
early carried off by ~~athletic~~ inflammatory diseases, or if he takes exercise suffic.t to render
ye diet salutary, such an accumulation is made of putrescent fluids as in
his after life lays ye foundation of ye most inveterate chronic distempers.
Therefore it is to be questioned whether we should desire ye high degree of bodily strength
w.t all these inconveniencies & dangers. Plain it is ye those who are chiefly em-
ployed in mental researches & not exposed to much bodily labour, should
avoid an excess of anim.l food. There is a disease w.h seems to require ani-
mal food viz. ye hysteric or hypochondriac, w.h to me seems to be very
much akin to ye gout affecting ye alimentary canal. All people affected w.th ye
disease are very much disposed to acescency & I have seen it go so far ye no
other Veg.s but bread could be taken in w.out occasioning ye worst consequences.
Here ye we are obliged to prescribe an anim.l diet, even to those of very weak organs
for it generally obviates ye Symptoms. However there are Instances of Scurvy
& excess being produced by a long continued use of ye Diet w.h it is always
unlucky to ~~prescribe~~ be obliged to prescribe & when it is absolutely necessary
to prescribe, it should be joined w.h as much of ye Veg.s as is possible & when
a cure is performed we should gradually return to ye again. If ye luxu-
rious age could be persuaded, this disease might be removed w.h much less
danger, by exercise, fresh air &c. avoiding warm Chambers, Venery & late hours.
But let us consider the veg.s diet. The chief inconveniency of ye is assimilation

h. however in y. vigorous & exercised will not be liable to occur. In warm climates y. assimilation of Vg. al. is more easy, so y. there it may be more used, & when joined to exercise gives a pretty tolerable degree of strength & vigour; & tho' y. general rule be in favour of an. diet for giving strength, yet there are many instances of y. being remarkably produced from vegetable. Vg. diet has y. advantage; that it whets y. appetite & y. we can hardly suffer from a full meal of it. Besides y. disorders it is liable to produce in y. prime vis & it falling short to give strength, I do not know any bad consequences it can produce in y. blood vessels, for there is no instance where its peculiar acrimony was exerted here, & it is certainly less putrefiable than an. food: nor w. y. utmost indolence & sharp appetite does it generally give plethora or any of its consequences, so y. we cannot here but conclude y. a large proportion of vg. food is useful for y. generality of mankind. There is no error amongst y. english more dangerous & more common than y. neglect of bread; for it is y. safest of vg. aliment. & y. best corrector of an. food; and by a large proportion of y. alone the y. bad effects of an. food obviated in a hypochondriac person. The french have apparently as much an. food on y. tables as y. english & yet by a greater use of bread & y. dried acid fruits y. bad effects are prevented, & therefore bread should be particularly used by y. english as they are so voracious of an. food. Vg. food is not only necessary to secure health, but long life, & as we have said, in infancy & youth we should mostly be confined to it, in manhood & decay of life use animal & near y. end vegetable again

There is another question much agitated: viz. What are y. effects of variety in food & drink necessary & allowable, or universally hurtful. Variety of a certain kind seems to me necessary as Vg. & an. foods have y. mutual advantages tending to correct each other. Another variety w. is very proper is y. of liquid & solid food, w. should be so managed as to temper each other & I formerly observed

of liquid food, esp.
assimilated, which
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animal foods, bef
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for ye st. one of
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heightened by ye rem
ye if acid e.g. taking
acidity, tendency &c
ye. vegetables being rem
in ye stomach & to ac
often occasions inconve
it must certainly be
gulum as remed.
Berichon's approbat
account of ye same
much may be said
Gluttons, thin & ye
prosperity digest, & be
freedom simplicity
stored in his apparatus
stances. But ye is
as ye only way of
its bad effects, by pro
ye bad effects of ant.
ye acet. that ye bad
broth, &c are at once

y. liquid food, especially of y. Veg. kind, is too ready to pass off, before it is properly assimilated, while solid food makes a long stay. But y. does not properly belong to y. question, whether variety of y. same kind is necessary or proper as in anim. foods, beef, fish, fowl &c. I indeed have never perceived any inconvenience arising from y. mixture, or difficulty of assimilation, provided a moderate quantity be taken; when any inconvenience does arise it probably proceeds from y. y. one of y. particular substances in y. mixture when taken by itself would produce y. same effect & indeed it appears to me y. y. effect is not heightened by y. mixture, but probably ~~obviated~~ lessened by it — There are few exceptions to y. if any e.g. taking a large proportion of acescent substances i.e. Milk. The coldness, acidity, flatulency &c may appear, & it is possible y. y. Coagulum from y. acescency of y. vegetables being somewhat longer induced may give occasion to too long retention in y. stomach & to acidity in too great degree. Again y. mixture of fish & milk often occasions inconveniencies. The theory of y. is difficult, tho from universal consent it must certainly be just. Can we suppose y. fish gives occasion to such a Coagulum as rennet. If it does so it may produce y. forementioned bad effects. Besides fish approaches somewhat to Vegetables in giving little stimulus & are accused of y. same bad effects as these viz. bringing on y. cold fit of fever. Thus much may be said for Variety: but it has also its disadvantages, provoking to gluttony, this & y. art of cooking making men take in more than they can properly digest, & hence perhaps Physicians have almost universally very justly preferred simplicity of Diet; for in spite of rules, mans eating will only be measured by his appetite, & satiety is sooner produced by one than by many substances. But y. is so far from being an argument against Variety, y. it is one for it so y. only way of ~~[illegible]~~ avoiding a full meal of anim. food & its bad effects, by preventing a quantity of Vegetables. Another means of preventing y. bad effects of anim. food ~~it~~ is to take a large proportion of liquid, & it is on y. acct. that y. bad effects of anim. food are often not so much felt, & also using broths, i.e. are at once excellt. correctors of animal food & prevent gluttony —

Having now finished
comparative & p
tical

Having now finished what we had to say on ant food in general & discussed several comparisons & questions wch. arose on ye. subject, I now come to treat of ye. particular substances that constitute our ant. diet.

Milk

Of ye. foods taken from Animals I chuse to begin wth. Milk, as it is a connecting & intermediate substance between animals & vegitables. Milk seems imediately to be secreted from ye. Chyle, both being a white milky Liquor of ye. same Consistence, & is most copiously secreted after meals & of an acrid nature. In most animals who live on Veg: ye. milk is accescent, & it is uncertain, tho at ye. same time no observation proves ye. contrary, whether it is not so likewise in carnivorous animals. If it really be found of ye. nature it will solve ye. question about ye. decomposition & accescency of ye. food of these last mentioned animals in ye. prima via. But whatever be in ye. it is certain ye. ye. milk of all animals who live on Veg: is accescent. Milk being derived from ye. Chyle we thence conclude its veg: nature, for in those who live on both promiscuously more milk is got & more quickly from ye. veg: than ye. ant. food. Milk however is not purely vegetable, tho we have a veg. liquor ye. resembles it in lute, consistence, colour, accescency & ye. separability of ye. oily part, I mean an emulsion of ye. mucco oleosa & farinaceous substance. But there want ye. coagulable part of Milk, wch. seems to be of an ant. nature, approaching to ye. of ye. coagulable Lymph of ye. blood. Milk then seems to be of an intermediate nature between Chyle taken up from ye. Intestines & ye. albumen or fully elaborated animal fluid. Its contents are of 3 kinds. 1. An oily part, wch. whatever may be said concerning ye. origin of other oils in ye. body, is certainly imediately derived from ye. oil of ye. Vegetables taken in, as wch. ye. it agrees very exactly in its nature, & would entirely if we could separate it from ye. coagulable part. Another mark of this agreement is ye. separability, wch. proves ye. ye. mixture has been lately attempted but not fully performed. 2. Besides these oily I have told you there is a proper coagulable part & 3. much ye. accompanies both, in wch. there is dissolved a saline saccharine substance. These 3 can be got seper

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then are ye general
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led against. Milk

rate in Cheese, Butter & Whey, but never perfectly so, a part of each being always blended w.th every other part. Nothing is more common, from what has been said of its intermediate Nature, than to suppose y.t it requires no assimilation, & hence has been deduced y.e reason of its exhibition in y.e most weakly state of y.e human body. But wherever we examine milk, we always find y.t it coagulates ~~in y.e human body~~ suffers a decomposition & becomes accescent. Again Infants who feed entirely on milk are always troubled w.th eructations, w.ch every body observes are not of y.e same quality w.th y.e food taken, & therefore I would allege, y.t like all other food milk turns naturally accescent in y.e Stomach, & only appears in y.e Chyle & Blood in consequence of a new decomposition. It approaches then to y.e nature of Veg: Aliment; but is not capable of its noxious sinous fermentation & therefore has an advantage over it; neither from y.e quality like anim.l food is it heating in y.e stomach & productive of fever, tho at y.e same time from its quantity of coagulable matter it is more nourishing than Vegetables.

These are y.e general qualities of Milk, now let us consider those as applicable to food. Milk is y.e food most universally suited to all ages & states of y.e body, but it seems chiefly designd by nature as y.e food of Infants. When animals are in y.e fœtus state, their Solids are perfectly gelly, incapable of an assimilatory power. In such a state nature has provided perfectly assimilated food as y.e albumen Ovi in y.e oviparous & in y.e viviparous animals somewhat of y.e same kind, as it was necessary y.e Vessels should be filled w.th such a fluid as would make way for an after assimilation. When y.e Infant has attained a considerable degree of firmness, as when it is separated from y.e mother, yet such a degree of weakness still remains as makes somewhat of y.e same Indication necessary. It behoves y.e Infant to have an alkalised food ready prepared & at y.e same time its noxious tendency guarded against. Milk then is given w.th is alkalescent & at y.e same time

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vance in growth
ate of tendency
of assimilation
Stomach
Stomach's digestion
undergone g. dissolution
putting g. aliment
to be dissolved. If
of the aliment.
either from a large
according to certain
formed in g. stomach
chon, rice, vermicelli
When g. acidity
remarkably repressed
fever
to take g.
vulgar prohibition, but
may be restored
lum
more or less
gelatinous milk
g. if it be an acid
stronger g. g. product
has been found in g.
of milk. But to
weak acid in g. stomach
they possess a we

has a suffic.t quantity of acidity to correct y.e alkalescency. As y.e body advances in growth & y.e alkalesc.t tendency is greater, y.e animal to obviate y.e tendency is led to take veg: food as more suited to its strength of assimilation —

I observed y.t Milk is suited to almost all temp.ts & it is even so to Stomachs disposed to acescency, more than those substances w.h have undergone a.y Vinous fermentation, nay it even checks y.e vin: fermentation, curing y.e heart burn & forcei, citating y.e Lees, when by renewal of fermentation y.e Wine happens to be fouled. It therefore very properly accompanies a great deal of Veg: alim.t although sometimes its acescency is troublesome, either fm a large proportion taken in, or from y.e degree of it, for according to certain unaccountable circumstances diff.t acids are formed in y.e stomach, in a healthy body a mild one, in y.e hypochondriac disease a.g. one sometimes as corrosive as y.e fossile acids. When y.e acidity of milk is carried to a great degree it may prove remarkably refrigerant & occasion cold crudities & y.e recurring of intermitt.t fevers. To take y.e common notion of its passing unchanged into y.e blood it can suffer no solution; but if w.h one you admit its coagulum in y.e stomach, then it may be reckoned among soluble or insoluble foods, according as their coagulum is more or less tenacious. Formerly rennet, w.h is employed to coagulate milk was thought an acid; but fm late observations it appears, y.t if it be an acid it is very diff.t fm other acids & y.t its coagulum is stronger y.n y.e produced by acids. It has been imagined y.t a rennet has has been found in y.e Stomach of all animals, w.h causes y.e coagulation of milk. But to me y.e Coagulation of milk seems to be owing to a weak acid in y.e stomach, y.e relicts of our veg: food inducing in healthy persons a weak & soluble Coagulum, but this may be very

diff. in diff. stomachs
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diff.t in diff.t stomachs, in these milk becomes a heavy & less soluble food, & sometimes even evacuated in a coagulated indissolved state both by stomach & stool. As Milk is accescent it may sometimes be rendered purgative by mixing w.h y.e bile & there are sometimes instances of y.e kind. More commonly however it is reckoned among those foods w.h occasion Costiveness. Hoffman in his Treatise on milk found y.t all kinds of it contained much water & when y.e was dissipated found y.e residuum very diff.t in solubility. But we must not hence conclude y.t y.e same insolubility takes place in y.e Stomach, for extracts made w.h water from veg: substances are often very insoluble & hardly dissoluble through V itself, therefore in Hoffmann's Extracts of milk, if I may so call them, somewhat of y.e same kind might have appeared, & those substances, w.h in y.e natural state were not so, might appear very insoluble. However we may allow y.t Milk is always somewhat insoluble in y.e Intestines as it is of a drying nature & as there is very costive. And y.e effect shows I think y.t milk is always coagulated in y.e Stomach, for if it remained fluid, no faces would be produced, whereas sometimes very hard ones are observed. In y.e bloodvessels, from its animal nature it may be considered as nutritious; but when we consider its equ.t contents & accescency in y.e ~~stomach~~ prima via, we find it does not, like and.r food, excite y.e degree of fever in y.e time of digestion & y.t from its accescency it will resist putrefaction. Hence is y.e foundation of its use in Hectic Fevers, w.h whatever be y.e cause appear only to be exacerbations of natural fevrish paroxysms w.h occur twice every day commonly after dinner & at night. To obviate these therefore we give such an Alim.t as produces y.e least exacerbation of these fevers; such is milk on acc.t of its accescent nature. There appears also somewhat peculiar in milk w.h requires only a small exertion of y.e anim.l powers in order to its assimilation; & besides in Hectic complaints there is wanted an oily bland food approaching to y.e anim.l nature so y.t on all these acc.ts milk is a diet peculiar

only adapted to this
Stomach. There is a
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consequences. In
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Mares, Ass & human
dilute, having little
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When coagulated,
their viscid
Cow, Goat & Sheep
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largest proportion
portion of coagulable

ly adapted to this & in general to most Convalescents & to those of inflamatory Temperts. There is a certain disease whose proper salutary form is ye. of Inflammation, I mean ye. Gout. There is no method of curing, I had rather say preventing this but by avoiding ye. inflamatory tendency by a proper regulation of diet. The inflamatory form wch. I said was ye. salutary one is also attended wth. a weakness of ye. Nerves, so ye. in our prevention we should not weaken ye. system too much as would be done by Vegetables & therefore milk may be employed wth. advantage. However it may be a question how far & in what cases we ought even to obviate the Gout, wch. is often a constitutional disease & has taken deep root in ye. system & if prevented in its native inflamatory form, will often be so by weakening too much & so will appear in other more pernicious ones; but there can be no objection against attempting ye. by milk. However ye. attempt ought not to be made but very early in Life, & then if ye. diet be mixed wth. proper exercise, temperance & avoiding of Venery there may be expectations of Success. For in ye. decline of life after one has been used to high living, ye. low diet is often attended wth. pernicious consequences. So far of milk in general we shall now speak of ye. particular kinds & such as are in common use —

Mares, Asses & human Milk agree very much in their qualities, being very dilute, having little solid contents, & when evaporated to dryness having these very soluble, containing much saccharine matter, of a very ready acescency & when coagulated, their coagulum being tender & easily broke down. From this view you see they have less oil & less coagulable matter than ye. rest —

Cows, Goats & Sheep Milk agree in opposite qualities to ye. first three mentioned but here there is somewhat more of gradation. The Cow Milk comes nearest to ye. former milks. Goat Milk is less fluid, less sweet, less flatulent, has ye. largest proportion of soluble part after coagulation & indeed ye. largest proportion of coagulable part; its oily & coagulable part are not spontaneously

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y. first [illegible] y. ocean
fitted for y. dist. of
rivers [illegible] more-distant
& convenient to y.
These [illegible] in
cumstances. 1. Dif.
diff. [illegible] for them
seking for y. dist.
only in y. same
ages [illegible] at diff. dist.
folds [illegible] y. Ocean
of y. [illegible] that
Dilute more or less
more or less in y.
e.g. old [illegible] being
always [illegible] accord.
The [illegible] of each
only when [illegible] prop.
Vale, y. [illegible] be
of y. mountain it
near y. bottom
of these animals
thus y. [illegible] is
Linnæus we have
to each animal other

separable, never throwing out a cream, or allowing butter to be readily extracted from it. Hence ye Virtues of these milks are obvious, being more nourishing tho at ye same time less easily soluble in weak stomachs than ye 3 first, less acescent than these & so more rarely laxative, & peculiarly fitted for ye diet of convalescents wt. out fever. The 3 first again are less nourishing, more soluble, more laxative as more acescent & adapted to ye hectic & convalescent wt. fever —

These qualities are in particular milks considerably diversified by diff.t circumstances. 1. Diff.t animals living on ye same diet give a considerably diff.t milk, for there seems to be something in ye constitution abstracting from ye alim.t wh. constitutes a considerable diversity of milk, not only in ye same species of animals, but also in ye same animal at diff.t ages & at diff.t distances after delivery. This you will easily conceive applies to ye choice of Nurses. 2. Milk ~~flows~~ depends more on ye nature of ye Alim.t than any other Juice in ye human body, being more or less fluid & dilute, more or less solid & nourishing, in proportion as ye qualities are more or less in ye alim.t. The nature of ye alim.t differs according to ye time of its growth e.g. old grass being always found more nourishing than young. Alim.t too is always varied according to ye season, as ye.t is dry or warm, moist or cloudy —

The milk of each particular kind of animal is fitted for particular purposes only when fed on proper food. Thus ye Cow delights in ye succulent herbage of ye vale, if ye sheep be fed there it certainly rots, but on ye higher & more dry side of ye mountain it feeds pleasantly & healthily, while ye Goat never stops near ye bottom but ascends to ye craggy summit. And certainly ye milk of these animals are always best when they feed on their proper soil, & thus ye.t of Goats is best on a mountainous country. In a dissertation of Linnaeus we have many observations concerning ye diversity of plants on wh. each animal chuses to feed. All ye swedish plants wh. would be collected together are

were presented alternately to domestic animals & then it appeared y. y. Goat lived on y. greatest variety & even on many y. were poysonous to y. rest: y. y. Cow chose y. first succul.t shoot of y. plant & neglected y. fructification, w.h last was preferred by y. Goat. Hence may be deduced rules concerning y. pasturage of diff.t animals. E.g. Farmers find y. in a pasture w.h was only fit to feed a certain number of Sheep, an equal number of Goats may be introduced, while y. Sheep are no less nourished than before —

Rules for y. cookery of Milk

It is not easy to assign y. difference between milk fresh drawn & y. detained in y. open air for some time, but certainly there is some material one, otherwise Nature would not have universally directed Infants to sucking, & indeed it seems better fitted than y. other for digestion & nourishm.t. Physicians have supposed y. y. depended on y. evaporation of some spo.s vector, but indeed I cannot conceive any such, the except common V, & besides these volatile parts can hardly be nutritious. A more plausible acct seems deducible from mixture. Milk new drawn has been but lately mixed & is exposed to spontaneous separation, a circumstance hurtful to digestion, none of y. parts being by themselves so easily assimilated as when they are all taken together. Hence then milk new drawn is more intimately blended & on y. account is most proper for y. weakly & Infants —

Another difference in y. use of milk exposed for some time to y. air is y. taking it boiled or unboiled. Physicians have generally recommended y. former, but y. reason is not easily assigned. Perhaps y. reason is this. Milk kept for some time exposed to y. air has gone so far to a spontaneous separation, whereas y. heat thoroughly blends y. whole & hence its resolution is not so easy in y. Stomach & thus boiled milk is more costive than raw & gives more faeces. Again when milk is boiled a considerable quantity of air is detached as appears from y. froth on y.

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Surface &c. & air is ye. chief Instrumt. of fermentation in bodies, so ye. after ye. process it is not liable to acescency; for these reasons it is proper for ye. robust & vigorous. Another difference of milk is according as it is fluid or coagulated. The coagulated is of 2 kinds as induced by rennet, or ye. natural acescency of ye. milk. The former preparation makes ye. less easy soluble coagulum, tho when taken wh. ye. whey unseparated, it is less difficult of solution, tho more so than any other coagulum in ye. same case. Many nations use ye. latter form wh. is easier soluble but very much acescent, & therefore in point of solution should be confined to ye. vigorous, in point of acescency to those who live on alkalescent food & in ye. last case ye. Laplanders use it as their chief acescent condiment. From ye. same consideration it is more cooling & its other effects like all other acescent vegetables. We now come to ye. examination of ye. parts into wh. ye. milk separates & 1st. wh. regard to the

Coagulable part

This we use at all diff. ages, from fresh curd to old Cheese. The whole of this is chiefly animal. Hence it is ye. most nutritious part & much ye. most insoluble & hence gives most faces, & therefore ye. common notion of Cheese being costive is just so far of Cheese in general. It differs in proportion to ye. quantity of oily parts natural or additional in ye. coagulable part. The more rich oily parts ye. are in Cheese ye. more it is nutritive & soluble, lean cheese being among ye. most insoluble alimt. Cheese is liable to rancidity & putrefaction & then we must consider it as having all ye. effects of anl. food the further advanced to putrefaction. At ye. time it ceases to be nutritive & is only to be considered as a fit Condt. for veg. food. In general cheese as an alimt. is only fit for ye. laborious & robust.

Oily part

We use ye. in consequence of its imediate & spontaneous separation

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in ye state of Cream. This is liable to acidity & rancidity, on both wh. acct. it is of difficult mixture & digestion in ye stomach & I dont know but all ye bad effects of milk may be imputed to Cream, ye 1/24 part of wh. is not pure oil & ye rest coagulable & saline parts. In ye form of butter ye oil is much more pure & then may be used wh. advantage in diet. I have mentioned it as a strong nutrient fit to accompany our veg. diet especially to ye leaner farinacea, in order to give them in some measure ye qualities of ye rich nuces oleosa. Butter is more rancescent than olive oil, but as this cannot be had here either pure or fresh, we use our own butter wh. greater propriety.

Watery Saline – Saccharine part

This will be diff. according as ye milk has been coagulated by rennet or its own acescency. By rennet ye coagulable part is more purely separated, & a proportion of oil goes along wh. ye Whey, but when ye milk is coagulated by its own souring, ye watery part is almost purely acid & seldom used. The whey contains much saccharine part & so is more acescent than entire milk & has even been said to be capable of ye vinous fermentation. Certainly it approaches nearer to it than milk itself, & hence is more capable of a noxious acescency, rendering it more purgative & flatulent than milk. Of all ingredients in milk there is a great proportion goes along wh. ye whey, & therefore it will be a nutritious substance, tho at first sight as ye was supposed to be separated, it might seem otherwise. Diff. Milks yield Whys of diff. qualities. Cows Milk allows its oil to be separated in ye greatest proportion in ye Whey, Sheep milk less & Goats not all. In some measure ye whey follows ye nature of ye milk, Goats whey is more nutritious & may be substituted for Womens, Asses & Mares in hectic

Milk is frequently employed in ye cure of Diseases, I shall therefore in a few words ~~explain~~ enumerate its uses in Medicine but I shall previously lay down some general heads, ye materials flow for what I have been just saying —

1. Milk is a very proper nourishmt & more readily converted into Chyle than most other, either veg: or ani: substances, ad generally cause a fever after they are taken up in ye blood. 2. Milk is greatly changed by boiling, being rendered less accescent & therefore less purgative. 3. Milk is always best & newly drawn from ye animal; for by standing it is considerably changed, ~~for~~ the parts separate & it becomes more accescent. 4. The Milk of animals ye do not ruminate, viz. ye human, asses & mare Milk, is never to be used but as it comes from ye anl. & we generally prescribe it in too small a quantity. 5. The Milk of ye ruminating anls is more difficultly assimilated than that of those ye do not ruminate, because it contains more oily & mucilaginous matter. 6. The Milk of ruminating anls is more accescent & partakes more of ye veg: nature than ye other; it is therefore preferable in those cases where ye humours are inclining to putrescency. 7. If Milk is taken plentifully & for a considerable time it changes & corrects ye Juices of Blood, destroys ye acrimony & resists Inflammatory Dis. 8. Buttermilk, as it is deprived of its oily parts, is less nourishing but more accescent than fresh Milk, & is therefore more cooling & laxative. 9. The Whey, being deprived of its oily & mucilaginous matters is less nourishing, but more accescent

cases &c. Goats whey is a medicine of great use in many cases & perhaps its advantages are improved by ye necessary reparation to mountainous Countries to obtain it, not only because it is there more perfect, but also on acct. of ye change of air, wch. is light & salubrious on high & dry grounds. By taking these substances in ye form of whey, there is introduced into ye habit a bland, easily assimilated nourishmt., passing off easily by ye secretions & soon changing ye state of ye fluids. If it were not for regard to ye state of ye stomach liquid food would often be employed wch. advantage, as in many cases increase of fluidity, gives increase of nourishmt. & thus a Calf is more effectually nourished by diluting its milk wch equal quantity of Water, than if ye milk were given alone. Quite analogous to ye is ye taking in bland & mild nourishmt. in form of whey, especially from ye richer milks.

Butter Milk

Here ye whey & coagulable part are more entirely separated from ye oily; but ye coagulable part in butter milk is broke down, resolved & of easy digestion. As it is very saccharine, it is nutritious, but not wout acidity & therefore is more cooling to ye system & more suited to ye inflammatory & alkalescent diathesis ye milk, but for ye same reason noxious when refrigeration is hurtful.

Condiment of Milk as liable to acescency & cooling, in particular constitutions where ye tendency is apprehended it may be accompanied wch. some of ye aromata, & cream & whey are there often blended wch. advantage if cured wch. Sugar is another Condimt. If milk is liable to acescency ye would seem to increase it & indeed it does so to stomachs so disposed. But Sugar has another effect viz: preventing ye spontaneous separation of milk & therefore has many of ye advantages of newly drawn milk. It is proper therefore to give sugar along wch. milk to convalescents. Conserve of roses is often employed & acts only by its Sugar &c as it being only such, & honey itself, ye most ancient of all ye sweets is often employed wch. advantage.

Having now finished what we had to say on Milk, ye intermediate substance between animal & vegetable, we now come to <u>animal food</u> strictly so called.

& hence more cooling & laxative than Milk. It may therefore be used in many Cases where Milk is improper; besides it is sooner assimilated. — From y. first head it appears; that Milk is of service in most cases, where a febrile paroxysm is hurtful; hence y. propriety of its use in hectic fevers, from whatever cause they arise; it is also of service to those that are recovering from fevers & a consumption, &c. is a very frq.t disease, Milk may be looked upon as y. best remedy, & hence was recommended by all y. Antients, & now particularly by Hipp: & Galen & Aretaeus asserts that if a consumptive person drinks large quantities of Milk, he has no need for other Physic. But though Milk in general is very proper for consumptive people; yet from y. 5th head I laid down, it appears y. human, Ass & Mares Milk are y. proper ones & Hippocrates used first to give a quart of Ass Milk every morning, & afterwards, Mares, Cows & goat Milk. Riverius & Hoffman relate many cases of consumptive people y.t were cured by Ass Milk. Whey is also of great service in y. disease, & also in all acute fevers & intestinal ulcerations. This is plain from our 9th argument. It cools & nourishes y. body, assists digestion, & may be given &c. safety in those cases where we cannot venture on Milk; & for y. same reason, Butter Milk is a most excellent remedy in this disease

The first difference of ani. food regards its Solubility, depending on a lax or firm texture of its ~~kind~~ differt. kinds. Solubility of ani. food seems to deserve less attention, than is commonly imagined, for I have known persons of a weak stomach incapable of breaking down ye. texture of vegetables or even of dissolving a light pudding, to whom lean beef or a piece of ham were very grateful & easily digested. None of ye theories given for ye solution of animal food in ye human stomach seem to me to have sufficiently explained ye. process. The supposition of an active corrosive menstruum then has been long ago discarded & also ye doctrine of trituration, for wh. indeed there seems to be no mechanism in ye human body & we now commonly agree wh. Boerhave supposing nothing more necessary than a watery menstruum, moderate heat & freq. agitation. This will account for solution in some cases; but not entirely. Let us try to imitate it out of ye body in ye same circumstances, & we shall not be able to bring about ye same changes in 10 times ye time in wh. ~~ye food~~ is required to dissolve ye food in ye stomach. Take ye coagulated white of an Egg, wh. almost every person can digest wh. facility, & yet no artifice shall be able to dissolve it. Hence then we are led to seek another cause for solution viz. Fermentation, a notion indeed formerly embraced, but on ye introduction of mechanical philosophy indeliberately banished wh. every other supposition of ye processes taking place in ye animal economy. Many of ye ancients imagined ye fermentation to be putrefactive. But ye we deny, as an acid is produced, tho hence ye fermentation might be reckoned ye vinous, wh. I have however formerly proved to you to be morbid. Neither indeed is ye fermentation purely acetous, but modified by putrescents, for Pringle has observed ye ani. matter rather to expede ye acetous process. The fermentation then in ye stomach is of a mixed nature between ye acetous & putrefactive, mutually modi

Milk sheaths ye. Stomach against ye. effects of poyson: It prevents ye. sharp Spicula from Lodging in ye. coats of ye. Stomach; it involves by its oleinesse ye & blunt rather ye. acrimony of ye. poyson & affords at ye. same time a proper fluid through wch. ye. Stomach may evacuate ye. poyson by vomit & lastly as a demulcent it prevents spasms. Hoffman gives us a remarkable instance of 10 young persons who had unfortunately swallowed Arsenic, but were snatched out of ye. Jaws of Death, by drinking large quantities of milk. I might adduce many Examples of this kind from ye. best Authors if it was requisite & our Time would allow it. Milk is also of great service in disorders of ye. Stomach. A Lady who had for 18 Months laboured under a most severe pain in ye. region of ye. Stomach, wch. an aversion to Victuals & freq. Vomiting; Emetics, purgatives, Opiates & all ye. Stomachic remedies were tried in vain; but by ye. liberal use of Asses Milk & Country air she was cured in 3 mon. In a Diarrhoea of long standing, ye. Mucus or slime ye. lines ye. internal surface of ye. Guts is abraded & they are affected wch. ye. most excruciating Torments, Griping & even Convulsions; wch which are often removed by Milk especially if boiled; for by ye. Means, as I observed in my second proposition, it is less acrescent, hence more emoll. & less purgative

lying each other; tho indeed in ye. Intestines somewhat of ye. putrefactive cause to take place, as may be observed from ye. state of ye. faces broke down & from ye. little disposition of such substances to be so wh. are not liable to ye. putrefactive ~~ferment~~ process, as ye. firmer parts of Vegetables &c. Upon ye. view solution seems to be extremely easy, & those substances to be most easily broke down wh. are most subject to putrefaction. But solution also depends on other circumstances & hence requires a more particular regard. 1. There is a difference of solubility wh. respect to ye. manducation of an. food, for wh. bread is extremely necessary in order to keep ye. more slippery parts in ye. mouth, untill they be properly comminuted. From want of proper manducation many persons are subject to eructations & ye. more freqly. from ye. firm veg. foods than from ye. animal, as apples, almonds &c. tho indeed even from anim. food very tendinous or swallowed in unbroken masses such sometimes occur. Manducation is so much connected wh. solution ye. one, from performing ye. imperfectly, are obliged to belch up their food, remanducate it, & swallow it again before ye. stomach can dissolve it or proper nourishm. be extracted. Another proof of our regard to solubility is our rejecting ye. firmer parts of an. substances as bull beef & carnivorous animals in general. Its effects wh. regard to solubility I also take 2. to be ye. foundation of our choice between fat & lean, young & old meats. In ye. lean altho single fibre might be sufficiently tender, yet these when collected in fasciculi are very firm, compact & of difficult solution, whereas in ye. fat there is a greater number of vessels, a greater quantity of Juice, more interposition of cellular substance & consequently more solubility. Again in young animals in my opinion there is ye. same number of fibres as in ye. older, but these in my opinion are more connected, whereas in ye. older, ye. growth depending on ye. separation of these & ye. increase of Vessels & cellular substance, ye. texture is less firm & more soluble, wh. qualities wh. regard to ye. stomach

~~The~~ Milk is of service in all diseases when ye. blood is vitiated by some kind of acrimony e.g. In Cancers & venereal Ulcers, by changing ye. humours of ye. whole body; but then we must order it in large quantitys & for a long time, according to our T. proposition. We have many Instances of its usefulness in these cases: Sylvaticus tells us that by Asses Milk alone he cured a cancerous swelling of ye. Neck of ye. Uterus; & that by ye. same remedy he had cured a venereal ulcer accompanied wd. a Tabes & hectic fever. Dr. Hoffman tells us that he knew a Gentleman of ye. Army who was for many years ~~troubled~~ wd. venereal pains, by wd. he became quite emaciated; but was entirely cured by Asses Milk — Dr. Monro informs us of two Young Men who laboured under venereal Ulcers: They were quite emaciated by them & frequ. Salivations; but still grew worse; but by Country air & Milk diet they were entirely cured in Six Weeks — —

are at ye. time too encreased, by ye. encreased alkalescency of ye. and. To this also may be referred our choice of castrated animals, viz. on their disposition to fatten after ye. operation. 3. It is co. a view to ye. solubility ye. we make a choice between ye. meats recently killd & those ye. have been kept for some time. As soon as meat is killd, ye. putrefactive process begins, co. we commonly allow to proceed for a little, as ye. process is ye. most effectual breaker down of and. matters, & a great assistance to solution. The length of time during co. meat ought to be kept is proportioned to ye. meats tendency to undergo ye. putrid fermentation & ye. degree of circumstances co. favour it. Thus in ye. torrid Zone where meat cannot be kept above 4 or 5 hours, it is used much more recent than in ye. northern climates. 4. Boiled or roasted meats create a difference of solution. By boiling we extract ye. Juices interposed between ye. fibres, approximate them more to each other & render them of more difficult solubility, co. is also encreased by ye. extraction of ye. Juices, co. are much more alkalescent than ye. solid fibres. But when we want to avoid ye. stimulus of alkalescent food & ye. quick solution, as in some cases of Disease, ye. roasted is not to be chosen. It may be asked co. if ye. roasted meats are most porous, those co. are little or much roasted. That co. is least done is certainly most soluble. Even raw meats are more soluble than ye. dressed, as shewn in Instance of a person who was for some time obliged to eat such. But at ye. same time ye. meats little done are very soluble, they are very alkalescent, so ye. wherever we want to avoid alkalescency in ye. primæ viæ, ye. most roasted meats should be chosen. Those who throw away ye. broth of boiled meats act very improperly, for besides their supplying a fluid as I formerly observed, they also encrease ye. solubility of ye. meat for their greater alkalescency. Here we shall observe ye. pure blood has been thought insoluble. But it is undoubtedly very nutritious, & tho out of ye. body, like white of eggs, yet it seems very insoluble, yet like that too it is commonly easy digestion in ye. body. Moses very properly forbad ye. Israelites ye. use of it, as in warm Countries it is highly alkalescent, & even it has been observed in Europe that from too free a use of it, ye. Scurvy

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has been brought on, but no such objection can take place in ye. Climates if used wt. moderation. 5. Solubility is varied from another Source viz: Viscidity of ye. Juice of Alimt. Young animals then appear more insoluble than ye. old not only on acct. of ye. compaction of texture, but also on ye. greater Viscidity of Juice. vid: Dr. Bryan Robinson's of Dublin epph on ye. Head. And nothing is more common as we observed then to be longer disgested from a full meal of Veal than from ye. same quantity of Beef &c. Upon acct. too of their greater Viscidity of Juice are ye. tendinous & ligamentous parts of animals longer retained than ye. fleshy muscular, as well as on acct. of their firmness & texture. Even fishes whose muscular parts are exceedingly tender are on acct. of ye. glewy Viscosity longer of Solution in ye. stomach & eggs too wh. are exceedingly nourishing have ye. same effect & cannot be taken in large quantity: for ye. stomach is peculiarly sensible to gelatinous Substances, & by this means her nature perhaps taught us as it were by a sort of Instinct to limit ourselves in ye. quantity of such nutritive substances. 6. With regard to solution we must also take in ye. oils of and. food, which when fluid are ye. least putrescent parts of it, & by diminishing ye. cohesion of ye. fibres render them more soluble, On ye. last acct. it is ye. lean part of fat meat more easily dissolved than the lean meat. But when ye. meat is exposed to much heat ye. oil is separated leaving ye. solid parts less easily soluble & becoming itself empyreumatic, rancescent & of difficult digestion in ye. stomach. Fryed meats for ye. reason now given & baked meats for ye. same as well as ye. tenacity of ye. paste, are preparations wt. diminish ye. ~~tenacity~~ solubility of ye. food. From what has been said ye. preparation of food by salting it & keeping it for some time after it is killed, altho it may administer to Gluttony will yet, it must be confessed, encrease ye. solution of ye. food

The second difference of and. food is wt. regard to Alkalescency. Of this we have taken a little notice already under ye. first head of volatility. From their too

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great alkalescency we commonly avoid ye carnivorous animals & ye fera & chuse ye granivorous. Some birds indeed wch live on Insects are admitted into our food, but no man can live long on them alone without nausea for any length of time. Fishes too are an exception to ye rule, living almost universally on each other. But in these ye alkalescency does not proceed so far, whether from ye viscidity of their juice, their want of heat or some peculiarity in their oeconomy, I cannot pretend to determine. 2. Alkalescency is to be determined by difference of age. The older animals are always more alkalescent than ye young from their continual progress to putrefaction. Perhaps this may depend on ye nourishmt of ye younger animals, milk, Vegetables &c. Homberg always found in his endeavours to extract an acid from human blood ye more was obtained from ye young than from ye old animals. A 3d circumstance wch varies ye alkalescency of ye food is ye wildness or tameness of ye anl & this again seems to depend on its species. I have heard of a Gentleman who was fond of Cats for food, but he always used to feed them on Veg: food & keep them from exercise in ye same manner did ye romans rear up ye rats when intended for food. In ye same way ye flesh of ye Partridge & Hen seems to be much ye same, only from its being more on ye Wing ye one is more alkalescent than ye other. Again tame animals are commonly acid about their Blood, whereas ye wild are commonly killed in their blood & upon ye acct as well as their great exercise are more alkalescent 4. The alkalescency of food may be determined from ye quantity of Salt it affords. The older ye meat is, it is found to give ye greater proportion of vol. Salt 5. The alkalescency of alim. may also in some measure be determined from its colour, ye young er animals being whiter & less alkalescent. We also take a mark from ye colour of ye gravy poured out, judging of ye alkalescency of ye animals according to ye redness of ye Juices. Lastly ye relish of food ~~depends~~ is found to depend much on its alkalescency as also ye stimulus it gives & ye fever

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it produces in ye. system. These effects are also complicated wth. ye. viscidity of ye. food, by wh. means it is longer detained in ye. stomach & ye. want of alkalescency supplied.

Having mentioned anl. food as differing in solubility & alkalescence wch. often go together in ye. same subject we come to ye. 3d. difference viz. Quantity of nutriment, wch. is either absolute or relative; absolute wch. respect to ye. quantity it contains; sufficient powers being given to extract its relative wch. respect to ye. assimilatory powers of those who use it. The absolute nutrimt. is of some consequence, but ye relative may wch. out inconvenience be disregarded in ye. healthy & robust, & except in cases of extraordinary weakness. In another case ye. quantity of nourishmt. is relative viz. wch. regard to its perspirability, for if ye. food is soon carried off by ye. secretions, it is ye. same thing as if it contained a less proportion of nourishmt. For ye. food wch. is longest retained gives most nourishmt. & ye. retention is also of advantage for ye. repair of ye. solids. Now gelatinous substances are longest retaind & are besides anl. substances themselves dissolved ye. both absolutely & relatively such substances are nutritious. Of ye. kind are ye. shell fish, eggs &c. In adults, tho it is disputed whether their solids need any repair, yet at any rate at ye. period fluid is more required. For ye. purpose ye. alkalescent foods are most proper, being most easily dissolved. They are at ye. same time ye. most perspirable, on one hand their alkalescency leading to disease, while on ye. other hand their perspirability obviates it. Adults therefore, as Writers justly observe, are better nourished on ye. alkalescent & young & growing on gelatinous foods. All this leads to a comparison of young & old meats, ye. first being more gelatinous, ye. last more alkalescent. This however is not yet properly ascertained by experience. Mr. Geoffroy is the only person I know, who has been taken up wth. ye. Analysis of foods. Vide Memoirs de l'academie du l'années 1731. & 32. His analy

tempt is certainly laudable, & in some respects usefully performed, but in general his expts are not sufficiently repeated nor indeed sufficiently accurate, & I would refuse ye. Beef & Veal have been properly examined, for he has not been on his guard against ye. various circumstances ye. affect meats. The cow kind liking a most succul.t herbage, &c. is not to be got in warm Climates, while ye. sheep are fond of a dry food & thrive best there. Again some of his expts seem contradictory. He says ye. Veal gives more solution than beef, while Lamb gives less than mutton, wd. I confess is much to be doubted. If both he & Sanctorius had examined english beef ye. result would probably have been very diff.t as to its perspirability &c. Besides Mr. Geoffroy has only analyzed beef & Veal when raw, has made no propr circumstantial comparison between Quadrupeds & Birds, & has examined these last along wd. ye. bones, & not ye. muscles &c. by themselves as he ought to have done. If a set of expts of ye. kind were properly & accurately performed they might be of great use, but at present, for ye. purpose of determining our present subject we must have recourse to alkalescency, solubility &c.

The 4th. difference of anim.l foods is ye. nature of ye. fluids they afford. The whole of this will I think be understood from what has been said on alkalescency, ye. fluid produced being more or less dense & stimulating in proportion as ye. prevails.

The 5th. difference of anim.l foods is wd. respect to their perspirability. The sum of what I have to say on this matter is this: that such foods as promote an accumulation of fluids in our vessels & dispose to plethora, are least perspirable & commonly give most strength; that ye. more alkalescent foods are ye. most perspirable, tho ye. viscid & less alkalescent may attain ye. same property by long retention in ye. system. The authors on perspirability have determined ye. perspiration of foods as imperfectly as Mr. Geoffroy has done ye. Solubility, & in a few cases only. We must not lay hold on what Sanctorius has said on ye. perspirability of mutton, because he

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has not examined other meats in ye. perfect state in ye. same way, for lest on what Neil says of Oysters as he himself was a Valetudinarian & consequently an unfit Subject for such experts & probably of a peculiar temperament —

Having now finished ye. examination of ant. food in general, we come to ye. consideration of particular animals of wh. it cannot be expected ye. much shall be said after we have been so full on general principles.

Animals are divided into 6 Classes: The Quadrupeds, Birds, Amphibia, ~~Insects~~ Fishes, Insects, & Vermes. The advantages of ye. ~~System~~ division will be known to any person who consults ye. 1st. Vol of Linnaeus's Systema Naturæ. That it should often contradict Language is not to be wondered at, since ye. arose from a gross superficial view of things. Linnaeus has now substituted ye. term of Mammalia for ye. of Quadrupeds, as ye. latter excluded ye. animalia Cetacea, wh. tho they have not 4 feet, have yet ye. other distinguishing ~~marks~~ properties of ye. Quadrupeds: viz. An heart w. two auricles & two Ventricles, Lungs wh. w. they have an alternate Inspiration & Expiration, penis intrans, & are besides viviparous & ye. females give Suck. This Class is subdivided into diff. orders, & it seems doubtful whether any of them are excited for our food, esculent animals, if I may say so, being in diff. respects taken from every one of them. The pecora are ye. order generally used & are distinguished by being hoofed, ruminant animals, phytivorous, domestic, tame & generally horned.

These for living on Vegs. are perhaps ye. most proper food & also for their being tame & domestic. Of ye. pecora those more commonly in use are ye. Cow, Sheep, Goat, Deer or Hart. In other Countries the rest may be used, as ye. Camel in Africa & if we take in ye. Much deer, we have ye. whole order. — 1. Cow kind. Beef, Veal. This we use like ye. others skin & diff. ways,

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q. Sheep can be
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between q. young
q. fore at head.

Young & Old. Beef compared wth. Mutton is of a firm texture & less soluble, but I am persuaded is equally alkalescent, perspirable & nutritious. If in y^e. southern Countries it is not esteemed so, it is on acc^t. of its imperfection there, as already observed. With regard to young & old foods, a great deal has been already said. I shall confirm y^e. hint w^h. an observation on our use of Veal. If we were purely to consider tenderness of texture, y^e. youngest animals certainly would always be preferred. But you observe y^t. we use Veal only at a certain age & perhaps y^e. reason of it may be this, when an anim^l. is very young altho' its fibres ~~when~~ taken by themselves are more tender, yet on acc^t. of their greater connection & complication they are less soluble, whereas in y^e. space of a month or two, by proper nourishm^t. y^e. fibres come to be more & more separated, a greater quantity of cellular substance is interposed & they are rendered more soluble & nutritious. Now after y^e. period, perhaps after y^e. 3^d. month, y^e. anim^l. nature tends towards robustness, firmness & rigidity, becoming more fibrous again & more dificultly dissolved. When an anim^l. is very young we commonly have an aversion to it. The whole of it then is as a semifluid mass w^h. cannot be taken in suffic^t. quantity & w^h. from its watery consistence can be but little nutritious.

Sheep kind. Mutton, Lamb.

Mutton has generally been preferred to all y^e. flesh of quadrupeds, & indeed besides its being more perfect has y^e. advantage over them of being more generally suited to diff^t. climates, whereas Beef e.g. requires a very nice intermediate state, w^h. it seems to enjoy chiefly in England, for altho' Scotland supplies what are reckoned y^e. best Cattle, it is in y^e. rich pastures of England y^t. they are brought to perfection. Now y^e. Sheep can be brought almost to y^e. same perfection in y^e. bleak northern as in y^e. mild southern Countries. With regard to y^e. difference between y^e. young & old of y^e. kind, y^e. same observations occur as under y^e. former head. Lamb appears a more fibrous meat & upon y^e.

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account is less easily soluble than Veal. In this Country we ~~are~~ but little house lamb is reared.

Goats flesh. Kid

The goat from its own nature & its exercise in quest of food, is of a firm fibrous texture, & w.th all y.e advantages art can give it of very difficult solution & so disused in those Countrys where delicacy of food is introduced. Kid from its natural rigidity & y.e little care bestowed upon its feeding has all y.e disadvantages of any young food in excess.

Hart — Venison

The fallow deer is that w.ch we are best acquainted w.th & are most known under y.e name of Venison. This from y.e nature of its oeconomy in its wild & exercised state & from being generally killd in y.e blood is an alkalescent rapid alim.t, considered as a very great delicacy & tho an exercised anl., of easy digestion. Its flesh approaches very near to y.e of y.e Sheep, tho undoubtedly it is more rapid & alkalescent.

We next come to speak of y.e Hare & Rabbit, w.ch tho they bear a great affinity to each other, differ considerably in their qualities as food.

Hare

This anl. is much exercised & thereby acquires a great firmness of fibres, & tho sufficiently alkalescent & killd in y.e blood, is yet of difficult solubility. As y.e tenderness of meats depends on y.e obtuseness of muscular parts, y.e hare killd after a long chace, when much of y.e oil of y.e body is absorbed, is much tougher & firmer than when killd in y.e blood.

Rabbit

This anl. is of very little exercise, moderately alkalescent, & one of y.e white

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Pythagoras
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some countries. It
why were not inconvenient

meats without viscosity. Whether on these acc^ts or some particulars in its oeco-
nomy, I have always found it one of ye lightest & most soluble and^l foods.

Hog. Pork.

This and^l is of a peculiar make & difficultly reduced to any particular order, plac-
ed however among ye Mamalia Bestia of Linnaeus. It is ye only domestic and^l y^t
I know, of no use to Man when alive, & therefore probably designed for food.
Besides as loathsome & ugly to every human Eye it is killd without reluctance. The
Pythagoreans whether to preserve health or on acc^t of compassion, generally
forbid ye use of and^l food, & yet Pythagoras, as it is alledged, reserved ye use of hog's
flesh for himself. The Jews, ye Egyptians & other Nations y^t inhabit warm
climates, & ye Mahometans in general reject at pres^t ye use of Pork. It is
difficult to find out ye reason of this or of ye precept given to some of
them, tho commonly such are not given without a particular one. The
Greeks gave great commendations to this food & Galen, tho indeed it is
suspected it proceeded from particular fondness, is there where very full of it. The
Romans considered it as one of their Delicacies, & if some of ye Inhabi-
tants of y^e ~~colder~~ northern climates have taken an aversion to it, it probably arose
from ye uncultivated state of ye country not being able to rear it. Pork
is of a very tender structure increased perhaps for a peculiarity in its oeco-
nomy viz: taking on fat more readily than any other and^l. Pork is a
white meat even in its adult state, & then gives out a gelly in
very great quantity. On acc^t of its little perspirability & tenderness
it is very nutritious & was given for ye intention to ye athletae. With
regard to its alkalescency no proper experiments have yet been made, but as
of a gelatinous & succul^t nature it is probably less so than many others. Upon
the whole it appears to me, who am unprejudiced in its favour, to be
very valuable nut^t & I really do not understand why it was forbid in
some Countries. It is said y^t y^e and^l is very apt to be diseased; But
why were not inconveniencies felt on ye acc^t in Greece? Again it

been alledged y. as Palestine would not rear these animals & as y. Jews had
ned y. use of them in Egypt, it was necessary they should have a prec
pt to avoid them. But y. egyptians themselves did not use y. meat, & y.
ligious precept indeed as well as many others seems to have been bor
rowed from them. Possibly as Pork is not very perspirable it might be said
t encreas y. Leprosy in Palestine, w. was said to be endemic there. But
is far from being certain, & tho a good purpose as I have said, is com
monly intended by such general precepts, yet they often take their rise
m y. particular prejudice or caprice of Legislators.

Many others of y. Mamalia or Quadrupeds are used in diff. Countries & it is
t certain w. of y. Quadrupeds may be excepted from y. rule. Thus y. Tartars
t Horses; y. Romans eat Apes, Dogs Rats &c. but of these, as we have no
perience, little can be said, tho their qualities may probably be understood
rm y. principles already delivered.

We now come to consider y. Class of Birds, w. are divided into 6 Orders.
Accipitres, Pica, Anseres, Grallæ, Gallinæ & Passeres. The Accipitres & Pica
e carnivorous Birds, being not used by us, nor indeed much by any
ation, in food. The other 4 are what are chiefly used, of w. we begin
. y. Gallinæ, as y. chief of our domestic fowl & of these y. first viz
allus gallinaceus is comprehended ~~used~~ by Linnæus under y. general
Name of Phasianus.

The Cock, Hen, Chicken & Capon are entirely domestic anim, there being
o Country as far as I know in w. they are found wild. They have little
ercise, live mostly on Veg. though sometimes indeed they pick up
insects, & are chiefly delighted w. grain. Hence they are a food of tender
structure, easy Solution, little alkalescency, & as a white meat, gela
inous. When very young they are extremely viscid, when old, tough & ligamen
tus, so y. y. proper time of using them is in a middle state between
y. two extremes, ~~tho~~ i.e. when about a year old.

I said y. Milk was of service in every inflamatory disease, & therefore it is also a great remedy in y. Gout. The Gout generally appears with inflamatory Symptoms, & it is not always safe to take off the inflamation by evacuations; for in old, who labour under this Disease, y. nervous system is greatly weakened by it: a Diet is therefore required that abstains from inflamation, & at y. same time encreases y. Vis vitæ or vital powers. The first & 7th Arg. show y. Milk is exceedingly proper for y. purpose; & I make no doubt y. in young people in particular this disease may be cured radically by Milk diet, joined w. exercise, & abstaining from Women for a time. And of this we have a remarkable Instance in a Pamphlet lately published, where we are told that a Man aged 60 years had from his Youth been afflicted w. a hereditary Gout, w. yielded to no remedies. He at last betook himself to y. use of a Milk diet & took 2 Quarts every day, & continued persisted in y. use of it for 9 Months, by w. he was entirely freed from y. painful Disorder. — Reason also as well as Experience show y. usefulness of Milk in y. Scurvy. In this disease our humours tend to putrefaction & y. cure must be performed by such matter that afford an accurate chyle, of this kind is Milk & its Whey & y. best of this is y. Milk of Ruminating Animals, Butter milk & Milk whey, as appears from over 6, 7, & 9 Arg. that for a further confirmation of this I refer you to Hoffman

A Question arises here about ye feeding of animals, it being doubted whether a crammed or barndoor fowl is preferable. Many of our modern arts of feeding, besides giving more succulency & tenderness to ye food, encrease its alkalescency. As giving succulency they are an Improvement, but as giving alkalescency a dangerous one, tho even in ye. ye they make solution more easy. Exercise however is necessary to give perfection, for by ye means ye fat of ye anl is equally dispersed through ye muscular parts whereas when ye animl is fattened lazily, ye fat is accumulated in a particular part viz. in ye cellular texture more strictly so call'd, so ye an exercised anl of equal weight is cater is fowlibus preferable to a fed one. The Meleagris gallopavo is another of ye Gallina under ye generical name of Meleagris. The Meleagris Gallopavo or Turkey, in ye regard to its qualities in food is entirely ye same as ye preceding, being equally tender, soluble & alkalescent.

The next Bird we come to is ye Pavo cristatus or Peacock, in ye is somewhat of a white flesh, but firm & rigid, & partly fm ye coarseness of its texture & partly fm its not being prolific, is now properly enough neglected. The romans formerly used our peacocks in food; but probably only for show. Pliny remarked ye ye boiled peacock could be preserved for a considerable length of time, but in this there is nothing so extraordinary as was imagined, for ye fluid is ye most putrescent part of ye animl, in ye is extracted by boiling & leaves only ye solid fibres behind. Now if what is called Jerking of Beef in ye W. Indies, or handroasting, in both in ye cases ye fluids are not so accurately drawn out, have ye effect of preserving meat for a considerable time, how much greater must ye effect be expected to be, fm ye more rigid texture of ye peacock exsuccated by boiling. We next treat of ye Pheasant. The Pheasant as a wildfowl is more exercised hence fm its living on ye drier Vegs & Insects, more alkalescent than

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tame fowl, & also for its being capable of fattning, more volubl
The following belong to one Genus called Tetrao by Linnaeus
The Tetrao Perdix & Tetrao Coturnix i.e. the Partridge & y. Quail, approach
in their nature to y. tame fowl, but are more rapid tender & alkaloe
y. chief cause of difference residing in y. alkalescency — The Tetrao
Lagopus, Tetrix & Urogallus, as living more on Insects, are more alk
alescent than y. two former & much more so than y. tame fowl
following Linnaeus I have omitted y. Grouse or red Game, w. however
meant to comprehend under the term Lagopus, altho Linnaeus
es not seem to be acquainted w. our Grouse, w. however is y.
Lagopus of other Naturalists & y. Lagopus altera Plinii. The qualities
these are very much in common, for its size rather than any real
difference I imagine it is thought more firm, tho perhaps for its living
high mountains, it is seldomer got young. I have mentioned young
red as viscid & gelatinous, but these of w. we are speaking are
t so, w. is an exception to y. general rule & w. I impute to y.
eater alkalescency of y. kind

Anseres

ept in order come y. Anseres of Linnaeus w. term may properly
translated Waterfowl
om their nature Waterfowl are much exercised & being generally
nivorous are more alkalescent than y. tame, & whether they have more
than y. wildfowl is undetermined. Certain however it is, y. whether for
eir less alkalescency or peculiar nature they are less voluble than these,
y. if we here apprehend a greater alkalescency, we must likewise susp
e a greater viscidity, w. indeed they generally prove more than
ild fowl. Linnaeus using Anseres for y. ~~generical~~ term of y. order
us Anas for y. goose as well as y. Duck, but for fear of confounding

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Anas domestica. the tame Duck. Naturalists have commonly considered ye. tame & wild animals ye. same, although they be diffr. in ye. manner of living. But however that may hold in Natural history we meet a difference in ye. qualities as food. The wild duck is more alkalescent, more tender & more easily dissolved than ye. tame, & in general this difference takes place between wild & tame animals if they are taken at a suitable age & proper season. Older animals are generally more alkalescent & more easily soluble than ye. young. Many animals however are not viscid when young, so ye. in ye. case ye. rule is contradicted. All wild animals differ also according to ye. season of ye. year, either fm ye. time of ye. molting, or fm ye. quantity of food they get. The next in order is ye. Anas Moschata or Musky Duck. Which seems to be of ye. same qualities as ye. former, but somewhat of a more firm & less tender texture. When these were first known here they were commonly reared to. very great case; but are now more commonly neglected.

The Querquedula or Teale

It is very much of ye. nature of ye. wild duck & is ye. most tender & alkalescent, ye. least viscid & most savoury of this kind.—

Anser domesticus.

This is no less alkalescent than ye. Duck, is manifestly less viscid, but of a firmer texture. Its solution however is not so constant, depending more on a difference of stomach—

I might here mention a great many more of ye. anserine tribe, but as you are not acquainted to. Nat. History it would be taking up your time to little purpose to give you Linnaus's Names to. I must do, as most of those ye. occur in ye. country wild have either ~~same~~ have none ~~no name~~

* They are all wild & we judge of their qualities, from their oeconomy or food. As living on fish they are viscid & alkalescent.

or very improper english names*. I shall only ~~mention~~ add to ye. former the Pelicanus Bassanus or Solan Goose, wch. is found in ye. northern parts of ye. Continent. — It is one of ye. most alkalescent foods that ~~have~~ is used; & used no where that I know of except in Scotland. It is and not much exercised & when old is insoluble. But when young it is very easy soluble, & when young may be taken in large proportions, & even in weak ones, and the alkalescent gives little inconvenience on ye. account. It is commonly talked of as a whet to ye. appetite, wch. seems to have taken rise, from its being so remarkable easy solution. All ye. illustrates what has been said of ye. solubility of food depending on its alkalescency, & hence may in some measure be understood ye. qualities of other sea fowl used in diet.

The Gralla, ye. next Class I am to mention, are much connected wth. ye. former as being aquatic birds tho not always swimmers or divers. They live often in marshy grounds, catching fish, Insects &c. They have been called Limosuga or mudsuckers; but improperly, as they take up ye. earth only as it contains Insects, or agitate it wth. ye. bills to bring up worms. For walking in marshy places they are provided wth. long Legs called Gralla, from their resemblance to those sticks on wch. people sometimes walk, whence ye. gradus grallatorius. There is a number of diff. genera Ardea ye. Heron & Bittern. Scolopax ye. Woodcock. Tringa ye. Lapwing or Plover &c. — They differ as they either inland or not &c. To ye. inland kind belong ye. Scolopax, or Woodcock & Snipe, wch. altho insectivorous appear less alkalescent of a tender structure & approaching to ye. white meats of ye. gallinaceous kinds. Here may be illustrated what ~~we have said~~ has been alledged of exercise producing firmness. The Woodcock is obliged to fly much about, while ye. partridge walks more & flies less. Hence it is observed ye. ye. wing of ye. ~~partridge~~ woodcock is

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& Beasts Linnaeus
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blood & Lungs

always very ~~tender~~ tough while ye. of ye. partridge is very tender & on ye. contrary ye. Leg of ye. woodcock is very tender while ye. of ye. Partridge is very tough. Hence ye. proverb give ye. Woodcock ye. Partridges wings & he will be ye. most delicate of Birds.

The Plovers are more alkalescent than ye. Woodcocks.

The Heron or Bittern. These are of a firmer texture than those we have mentioned & when old are of little use. In their young state they are commonly fat, sufficiently soluble alkalescent & of exquisite relish. It would be worth while to examine accurately ye. qualities of ye. Heron & bittern, as we should then know what was ye. difference between animals of ye. same genus living on fish or on Insects. Those that remain of ye. Grallæ are entirely such as live on ye. Seashore, & therefore are more alkalescent than ye. other Grallæ, & approach in ye. Nature to ye Solan Goose

We now come to ye. Aves passeres of Linnæus of wh. we see a very great Variety. I shall only set down a few of them, wh. are ye. chief of those used in food. It is difficult to say whether they have common Qualities. Enquiry would probably shew us some difference, as they were either graminivorous or insectivorous

The Columba or Pidgeon. Are a hot & alkalescent ~~food~~ food from much exercise; perhaps more so than any of those who live on Grain. When young they are tender & of easy solution.

Amphibia. The meaning of ye. term is doubtful. It is commonly applied to animals who live both on Land & so includes both Birds & Beasts. Linnæus's distinction is this: The Beasts have a heart wh. 2 Auricles & 2 Ventricles, a warm Blood & Lungs wh. breath alternately, whereas ye. amphibia have a heart wh. one auricle & one Ventricle, cold Blood & Lungs wh. breath arbitrarily. They are divided into 3

Ordinary expressions
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Orders, ye. Serpentes, Reptiles, ~~Rana~~ Nantes.

Of ye. Reptilia there are 3 Genera employed in food. The Testudo, Tortoise, the Lacerta, Lizard, the Rana, Frog.

Testudo, Tortoise. Of ye. there are several species used in food. The green Turtle is now become a famous delicacy. It is of a peculiar nature, having its fat of a green colour, of a remarkable odour, affecting ye. urine & sweat, the colour of wd. last is also altered. From ye. it has been supposed of peculiar qualities. From its odour &c it might be medicated, but these have no effect on its qualities as nutrim.t. From some particulars in its oeconomy, from its little motion & from living on Veg: it is less alkalescent than any of its kind, of a very gelatinous nature & highly nutritious.

Of ye. numerous Lacertæ, there are few ~~used~~ employed in food. The only one I knew is ye Guana of ye. W. Indies. This is there esteemed a great delicacy & of tender texture.

Frog. As to ye. Frog one of its species are used in France, ye. Rana esculenta. I am ignorant of its qualities for want of particular experience. As far as we can depend on Geoffroy, ye. anim.l from affording little volatile salt, seems not very alkalescent, nor from others of Mr. Geoffroys appears very gelatinous. But considering ye. class to wd. it belongs & from any small examination I myself have made of it, it would seem to approach in its nature to ye. Tortoise & Guana.

Viper. Of ye. amphibia Serpentes I know only one species used in food viz. ye. Viper. It is still uncertain whether this is to be considered as food or medecine. It has been much talked of in ye. last Intention, tho in my opinion it can have little power as such, for med.s are such med.s as alter ye. system suddenly & out

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being conquered by it. Now Vipers are commonly used in Broths & prove very nutritious being continued for a length of time, neither indeed is its volatile Salt, wch. has been esteemed a famous remedy, diff. from ye. of other animals. Upon all wch. accts I conclude that its virtues in medicine must only be in consequence of its nutritious quality. ~~Be a food for~~ From Geoffroys accts I perceive ye. as a food it is sufficiently soluble, approaching in ye. & ye. quantity of Juices it affords to quadrupeds, & to fishes in ye. gelatinous nature of their Juices. Like all ye. amphibia it is of an intermediate nature between quadrupeds & fish, tho in its qualities approaching more to ye. latter. I told you ye. for want of other principles I determined ye. alkalescency of anr. substances from ye. quantity of vol. Salt they afford. The Viper as affording less of this, I conclude to be less alkalescent than quadrupeds or Birds.

As in natural history we observe one kind by insensible degrees passing into another, so here ye. amphibia connect ye. quadrupeds & fishes, of these ye. Reptiles on one hand approaching to Quadrupeds, while ye. Serpentes on ye. other come nearer to ye. fishes. There is still another order of ye. Amphibia viz. ye. Nantes, ye. same wch. formerly went under ye. name of cartilaginous fishes. I shall only find here. The Petromyzon or Lamprey. The Raja Skate & ye. Acipenser Sturio Sturgeon. There are 2 or 3 more genera belonging to ye. order of ye. Shark kind is sometimes used in food. I said they were formerly classed wth. ye. fishes, but Linnæus considering ye. in ye. Skin, Lungs, Organs of Generation & ye. in their being viviparous &c. they approached to ye. amphibia, has very properly ranked them in ye. Class. With respect however to ye. qualities as food they are little diff. from ye. fishes, tho indeed I should suppose they approached to ye. other amphib.

they afford a more gelatinous food than any of ye quadrupeds or amphibia & probably are more nutritious. As to ye alkalescency, from ye quantity of vol. salt they afford, I conclude they are less alkalescent than ye animals abovementioned & more so than ye fishes

Fishes. After saying somewhat on ye Quadrupeds, Bird & amphibia, I come to ye fish kind. I shall only set down those wch are commonly used, tho in England perhaps more may be used. The first of these is ye Genus of Salmo wch there are several species. Salmo solar. The common Salmon. Salmo Trutta, ye river trout &c. Next the Carp, Tench, Chub, Roach, Perch, Haddock, Mackrel, Tunny, Herring, Sprat, Anchovy, Shad, Flounder, Pike &c.

Of ye Qualities of fishes in general

Their texture is universally more tender than ye of flesh, & they have nothing of a fibrous structure. With respect to ye solution after all ye matter does not seem determined, for from Geoffroys experts it appears ye they give out less soluble matter out of ye body than flesh. It is however very probable ye ye powers of our stomach, ye fermentation wch is excited there greatly exceed any power we can apply out of ye body, & as far as we are able to judge, they are of more easy solution than flesh meats. Broths however of fishes do not form into a jelly tho there is somewhat glucy & viscid wch like ye young meats makes them long retaind in ye stomach, yet after all I do not find ye even in this case of their longer retention & difficult perspirability ye by ruminant men if I may so call them, they are so often brought up as other foods. The alkalescency of fishes seems less than ye of meats, ye putrefaction being slower & their yield of vol. alk. less. There is in ye solution of ye food something particular, wch is

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animals they eat

not yet properly enquired into. We use oil or butter sometimes in our veg: aliment, sometimes in meats, but more frequently still & in greater quantity in fishes. This certainly if properly understood would throw some light on ye solution of ye alimt as it seems a rule followed from some indication of Instinct rather than precept of reason. I formerly spoke of ye stimulus given to ye stomach by ye alkalescency of meats, in. I hold you at ye same time might be produced by viscidity & long retention there. In ye fish kind ye is more remarkable, they being a very short time in ye stomach before they produce heat, fever, thirst & sometimes efflorescences over ye whole surface of ye body.

You will easily see from ye difficulty of giving ye general qualities of fishes how little you can expect to be said on particulars. In order to ye understanding ye qualities of fishes they have been considered as differing in being river or seafish, sapatiles or limosi, i.e. those living on gravely bottoms or such as like ye Lamprey, lie at ye bottom in ye mud &c. But in neither of these divisions do I find any certain foundation for ascertaining the differences of fishes as alimt. Dr. Cheyne was extremely fond of ye distinction by colour, ye white being supposed less stimulant & ye red more so. In birds & quadrupeds indeed ye will hold, but there are, except ye salmon, but few fishes that are not of a white colour, so ye ye distinction will go but a little way. As we found a difference in other alimt from difference in food, ye same would seem to take place in fishes, all of whom are mostly carnivorous, nor does any difference in ye kind of animals they eat seem to make any difference in their qualities.

The fresh eggs, when
specifically heavier
than water, lie on
water like an
egg of a fowl.

Albumen. Some
substance, supposed
to be coagulating
any other fluid
white on coagulation
It has not yet been
shell membrane & life

Cryptogamous. The
life hardening, life rapid
of these in Nature
tender substance
stimulant

Gadus. These are
in Whiting, Haddock
stimulating to
p. 3.

Fishes are often
these we have mentioned
have strictly speaking
The aquaticus are
vorable in Stomach

The perch eg. who eats mite, fishes, Insects indifferently & all of them rapaciously & besides indeed Waterfowl &c is not more alkalescent than those who live on Insects alone. Nor indeed are they to be distinguished entirely from their Diff.t Genera, tho y.e indeed comes nearer y.e truth than any of y.e other distinctions. We now proceed to y.e particular genera of

Salmon. Most of this genus are fluviatiles or lacustres of a tender substance, sufficiently succulent & nourishing. They are also alkalescent & heating & Efflorescences &c are as req.d from them as from any other fish. The red kind are of a higher relish & alkalescency, y.e white are soft & gelatinous. Here I may observe y.e Linnæus seems to have forgot Salmon Trout, w.h are undoubtedly more stimulant & alkalescent & less gelatinous than those of y.e white kind —

Cyprinus. This genus is of greater Sanity than y.e former, drier & less tendinous, less sapid & heating & among y.e fishes of a nature little glutinous. To these in Nature approaches y.e Perch, w.h is of firm texture but tender substance easily solable, not glutinous, heating or remarkably stimulant.

Gadus. There are sea fishes & those of them we are best acquainted w.h are Whiting, Haddock & Cod. These give a gradation in tenderness, glutinosity & stimulancy to y.e System, y.e Cod being y.e firmest, most viscid & heating of 3.

Fishes are often distinguished as being more or less squamous. All those we have mentioned are of y.e scaly kind. The Amphibii & Eel kind are strictly speaking no scales. The flounder is intermediate between y.e 2 squamous are universally less glutinous than those w.h have scales, easier digestible in y.e Stomach tho less nutritious — —

Cyclopterus

Lumpsucker, or Sea Hare. This is a very
thick, wide-mouth'd, short fish, with
a small head, and little teeth. It
is very common, & very tender
& sweet. It seems to me to
be very like the y. one &
Cod, but is much
little fish & little
we take in. We
fish y. this is com
Clupea. All the
& succeed herrings
salmon, quick
Pleuronectes. The
Specie. They are
than y. preceding
Eel kind. Some
as y. Ocean, pinch
ton in y. stomach
Sorcetta. This is
y. Sorcetta & Greenhorn
hopper but
of y. Eel kind
then to

Cyclopterus Lumpus. The Lumpo fish is remarkably glutinous without scales, approaching in quality to y. Eel & remarkably nutritious to those who use it. The Mackerel is a drier substance & less nutritious.

Trigla Cuculus. Red Gurnard. This is a remarkably rapid fish of y. white kind, said to be considerably nutritious & much valued in those places where it is used.

Mugil. Mullet. I am not certain whether our Mullet be y. Mugil of y. romans. It certainly has not y. exquisite taste for w. they valued their & seems to me to be of a middle state between y. Carp & Haddock, less dry than y. one & more succulent than y. other. It is suffic.ly soluble & nutritious.

Esox Lucius. The Pike. This tho rapacious & carnivorous is yet a dry little oily & little alkalescent food & one of y. least heating of any we take in. We must suppose then, considering these qualities of y. fish, y. this is somewhat peculiar in y. economy w. gives rise to them.

Clupea. All this Genus comprehending y. Herring &c. are of an oily & succul.t nutritious nature, in their heating quality being next to y. Salmon, quickning y. pulse to a considerable degree.

Pleuronectes. The Flounder kind. This genus comprehends several species. They are all of a tender oily succulent nature, more glutinous than y. preceding but less so than y. following.

Eel kind. Some here are wont squeamish, much of y. same quality w. y. Viper, viscid, nutritious & difficultly perspirable & by long retention in y. stomach heating & oppressive.

Locusta. This is a class little thought of as food. In some countries y. Locusts & Grasshoppers are used as food. I can say nothing of y. Grasshopper but y. it approaches in nature to y. Shrimp. The whole of y. Crab kind although diff.t in their class approach in ~~y. Nature to y. Shrimp~~ y. quality to y. fishes in not being easily

Disposed by Dec
against ye fishe
either of to some
pity flour. –
Oysters
Oysters. They
They are of 5 sort
& testacea. Of the
fish. Little regard
to it. ye sort
Muscles Clams
The quality of ye
a more tender
seem to be of
viscid gluten of an
milistu in ye
to very great dif
nourishing of an
yet they are among
the Snail. Both
Oysters are a high
& imperishable.
in ye coast of ye
cay & very nourishing
ployed as a Bait
where they have be

dissolved by decoction, to ye. Amphibia in giving gelled broth & again to ye. fishes in stimulating ye. system. They afford little vol. alkali & to some are a very peculiar stimulus, producing heat, acrity & fever. — They are chiefly: ye. Crab: ye. Lobster & Shrimp

Vermes These were formerly compounded partly wh. ye. fishes partly wh. ye. Insects. For ye. reason of classing them separately vid. L. P. V. 1. They are of 5 orders two only of wh. are used as Alim. ye. Mollusca & Testacea. Of the Mollusca there is the Sepia Loligo, Cuttle or Ink fish. With regard to its qualities it has none but what are common to it wh. ye. rest of ye. Vermes. Of the Testacea there is ye. oyster, Muscle, Clam &c

The quality of ye. whole of ye. Vermes is nearly ye. same. They are of a more tender texture than any other anl. food & thus would seem to be of very easy solution. But they afford perhaps ye. most viscid gluten of any of ye. anl. ~~gluten~~ foods, by ye. means affect ye. mixture in ye. stomach & more ye. last digestion, by wh. they are wh. very great difficulty expelled. By ye. means they are among ye. nourishing of anl. foods & tho as anl. substances they are alkalesc. yet they are among ye. least so & least heating to ye. system

The Snail. With regard to ye. it has ye. general qualities of ye. Vermes in a high degree, of a tender texture, easily soluble, but viscid & imperspirable. The garden Snail is not known here as food, but in ye. some of ye. southern countries in europe it is reckoned a delicacy & very nourishing. They are sometimes boiled in Milk & employed as a Medicine in hectic cases, & I know some instances where they have been attended wh. remarkable advantage, when

There was no alter-
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Girls being from
others of y. form
the Oyster. If
state can be take
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tion of other fo
rect. they are natu
to y. system —

There might have
what analogous to
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contain a larger p
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ated in y. stomach
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cannot be taken
tion in y. vessel
in y. coagulated state
seems at best to be

there was no ulcerations, for they soon recruit ye emaciated habit, but in case of ulcerations, then as well as all other and. foods are very improper. A remarkable instance of ye nutritious quality of Snails appeard in ye famine wch happend about 60 years ago in Scotland, ye Girls being found to be remarkably nourished by Snails alone, while others of ye poorer sort were meagre & half starved —

The Oyster. It is among ye few and. foods we take in raw, & in ye state can be taken in much larger proportion & are more easily digested than when dred. Heil & Sanctorius both agree in calling it a food of slow perspirability. Heil says it retards ye perspiration of other food; but ye I confess I do not understand. On ye acc. they are nutritious, & tho long retained, as little heating as any to ye system —

Eggs of Birds.

These might have been treated of after ye bird, but as they are some what analogous to ye last mentioned food, I place them here. It is obvious from ye nature & use in ye nourishmt. of ye foetus yt they contain a larger proportion of pure nutrimt. than any other aliment as they give no faces. For every other kind of food has some of its juices gone farther to putrefaction than ye albumen wch is excreted in our stomachs, wch are deposited in ye form. After all eggs are not of easy digestion & from ye proportion of nourishmt. they afford cannot be taken in large quantity, whether ye difficulty of digestion in Eggs resides naturally in ye viscosity of ye albumen or ye coagulated state in wch we take it in, is a question. It seems at least to be increased by coagulation as ye hardest egg is

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substance & long
ful but in y. fore
never appear in y
nourishing
halescence having

most difficult of digestion. I dont imagine ye insolubility resides in
ye yolk as some have supposed, for I have persons known to
reject ye white & live on ye yolk entirely w.h is of diff.t qualities &
designed for an after food. I have already mentioned ye Insolu
bility of albumen Ovi out of ye body by heat &c & said it could only
depend on fermentation. Eggs approach to ye Vermes in
viscidity & difficult perspirability They are less alkalescent than
flesh, some of whose Juices have always proceeded too far. A
proof of ye little alkalescency of Eggs is from their being ye an.l food
least apt to spoil. Some have supposed bad qualities, but I know
no Instance of any. They are sometimes noxious to certain pers,
ons but ye we must explain from an Idiosyncrasy
This is all ye occurs to me on ye subject of Eggs. I should next go on
consider med.s but before ye shall recapitulate a little what has
been s.d on ye subject of alt. From ye whole you learn ye alt.
divided into veg. & an.l & ye Milk is of an intermediate natu
tween both, acescent as ye Veg. but not liable to a vinous acescency
resisting as ye an.l but not liable to its noxious alkalescency The
acescent veg. alt. seems absolutely necessary to ye human economy
there are none of ye human species but what do employ it. How
we could dispense w.h an.l food is uncertain. It seems rather usey
than necessary, in order to give great strength, & little proper for
subsistence & long duration of life. Further ye Veg. alt. is never hurtf
but in ye prima via, & in these only if ye disease. Its effects
never appear in ye bloodvessels. On ye contrary an.l food w.h is more
resisting easily goes to speed & approaches to danger readily by its alk
alescency laying ye foundation of diseases as well as its other

qualities, as y. Sou

of pleasure & Pain

appearance &

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receptes y. stronger

of and. food is an

not so much conve

proportion of vegetable

sugar & oil, both

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as then they rect.

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are intimately blended

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Anil. food differs

y. most alkalescent

seems to depend on

y. greater heat, y.

alkalescency of fishes,

qualities e.g. Corpulency, obesity & putrescent acrimony —

Effects on Alim.t on y.e Mind.

It is plain y.e delicacy of feeling, liveliness of imagination, quickness of apprehension & acuteness of Judgment more freq.tly accompany a weakness of y.e body. True it is indeed y.t y.e same state is liable to timidity, fluctuation & doubt, while y.e strong have y.e steadiness of judgment & firmness of purpose, w.h are proper for y.e higher & more active scenes of Life. The most valuable state of y.e mind however appears to reside in somewhat less vigour & firmness of body. Veg. alim.t as never distending y.e Vessels & overloading y.e system, never interrupts y.e stronger motion of y.e mind, while y.e heat, fulness & weight of anim.l food is an enemy to its vigorous efforts. Temperance then does not so much consist in y.e quantity as in y.e quality, viz. a large proportion of Veg. alim.t. So much in general. Veg: alim.t consists of sugar & oil, both separately nutritious, but then liable to disadvantages. Sugar is of difficult assimilation especially if its acid is evolved as then like y.e rec.t fruits it will be a proper subject for y.e vinous fermentation. Oil is more difficultly mixed, & oily food more so in proportion as y.e is more separate. The farinaceous w.h w.h y.e oil & sugar are intimately blended are y.e most perfect of veg: alim.t & of them y.e Cerealia, as you will now easily know for y.e qualities —

Anim.l food differs in alkalescency & viscidity. The quadrupeds & birds are y.e most alkalescent; y.e Fishes & Vermes y.e most viscid. Alkalescency seems to depend on y.e heat of y.e anim.l. The quadrupeds & birds have y.e greatest heat, y.e fishes & worms least. A farther proof of y.e less alkalescency of fishes, is y.t w.h anim.l food we are constantly led by inq

stinct to take in veg: alim.t The same instinct has never led us to take it in w.t fishes. For expts sake I have several times taken apples along w.t fish, & found them to disturb digestion. The flesh of Quadrupeds & Birds is on acc.t of its alkalescency more easily dissolved & sooner assimilated into y.e blood, giving earliest nourishment & strength, while on y.e same acc.t it is wisely ordained y.t it is sooner expelled. Fishes & worms on acc.t of their viscidity are more difficultly dissolved & assimilated, retained longer in y.e System & only heating from their retention & thus even accumulating y.e fluids & affording nourishment to the solid parts —

Having finished
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Botanic Med. Syste
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Nature & history
Method in natur
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can be distinguis
names by B. written
we may arrive at a

Having finished ye. Subject of Alim.to I proceed in ye. next place to con-
sider med.s As introductory to this I think it necessary to tell you ye.
manner of investigating ye. Virtues. As ye. foundation of what I have
to say on this I shall take ye. following Canon from Linnaeus in his
Mat: Med. Systemat: Qualitate & Experientia cruitur omnis usus
plantarum. What he here applied to Veg: will in some measure
suit ye. other Kingdoms. The two first qualities he explains
more fully in his Philos: botan: where he employs ye. term fru-
ctification, wch. is ye. same wch. ye. System, for plants are systemati-
cally disposed according to ye. fructification. In giving ye.
qualities of Alim.t I have often alluded to its place in Nat: History
& shall be obliged hereafter to do so more in giving ye. qualities
of Medicine. This method of investigating ye. med.s from ye. bota-
nical division, was long since started by Hoffmann in his
Treatise de compendiosa methodo & before him by Dr. Blair in
ye. philosophical transactions. The botanical rules are however
far from being general, but as far as they go they serve very
well for analogy, and on ye. acct. we shall often have re-
course to them, but before you can be acquainted wth. these
rules, it will be necessary to give you an Idea of method in
Natural history in general.

Method in natural history in general is ye. by wch. a production of
nature being presented, we can proceed to know how it
can be distinguished from all other productions of nature & ye.
names by wch. writers have distinguished it, in order ye. by ye. mean
we may arrive at a knowledge of its nature, qualities & virtues

This is done by co
orders, general Effe
be made in v.
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& if it have y.
either of y. and
of y. Subject
of power or arbitr
be a ex. substance
with multiplicate
arbitrary power of
& are called kings
Classes &c. In order
take an example.
ted id. y. in some
6 classes. Linnaeus
fm y. structure of th
have a heart of two
blood. 2d. have
blood. 3d. have
white blood, or as
mine the strictly
rather come to tak
Pisces, Insecta, Verm

This is done by collecting natural productions into kingdoms, classes, orders, genera & species. As to y. 1st division. If a substance were presented to me in wch. I could observe no proper organisation, no difference between y. containing & contained parts, I would conclude it to be of y. mineral fossile kingdom. A fossile also has no appearance of y. vita multiplicata or power of propagating its like. But if there be a difference between y. containing & contained parts, & if it have y. power of multiplying itself, I conclude it is either of y. anim. or veg: kingdom. Again to distinguish these I find y. Subject fixed or when moved to have no locomotive power or arbitrary means of moving itself I conclude it to be a vegi substance, for animals are organized bodies endued wch. vita multiplicatiua & locomotive power, or if fixed have y. arbitrary power of moving their parts. These are y. largest collections are called kingdoms. Each of these is again subdivided into classes &c. In order to give you a Notion of these it will be best to give an example from y. animal kingdom, as you must be already acquainted wch. y. in some measure. The anim. kingdom is divided into 6 classes. Linnaeus has first attempted a division of them into 3 from y. structure of their heart, y. heat & colour of y. blood. The first have a heart of two Ventricles & two auricles & a warm red blood. The 2d. have a heart of one Ventricle & one auricle wch. a cold red blood. The 3d. have a heart of one auricle & 1 Ventricle wch. a cold white blood, or as Linnaeus calls it Sanies. If we were to examine these strictly I believe they would not answer so well, so I rather chuse to take y. 6 Subdivisions: Mamalia, Aves, Amphibia, Pisces, Insecta, Vermes. 1. The Mamalia have a heart wch. 2 Auricles

of two Ventricles, a warm red blood, are necessarily breathing, have ye respi-
ration alternate, succeeding in a short time, maxilla incumbentes, or
Jaws laid horizontally on each other, in opposition to those to open
laterally & these Jaws always covered, Penis intrans or ye parts of generation
of ye male entering ye female, who is always provided to breasts & nucles
for young. 2. Aves. The heart & respiration are ye same as in ye Mamalia
maxilla incumbentes, but not covered, operta, or having their maxilla
stretched out ye parts of ye head, edentula or without teeth, the males
do enter ye female but are without ~~teeth~~ external testicles. Their females
are oviparous & have ye Eggs covered to a ~~external~~ calcareous
shell. The whole of them are always covered to feathers & have only
two feet. The reason why I did not take in ye number of feet in
characterizing ye Mammalia is because it did not apply to all
of them, for tho the greatest part have feet, yet there are some
that want them.

3. Amphibia. Have a heart of 1 Ventricle & 1 Auricle to a cold red
blood. There is some doubt to regard to ye universality of distingui-
shing them by one auricle & one Ventricle; but ye exceptions are
not certain. When I say they have cold blood, I mean ye is not
much warmer than ye surrounding ~~atmosphere~~ medium, whether
be air or water. They have lungs to wh they breath arbitrarily.
They agree to ye two former in maxilla incumbentes & have
no Penis. The females are generally oviparous tho not always so,
when they are, their ova are only covered to a membrane. Their
extremities are neither covered to hair or feathers. Their feet very too
much to be a characteriz the Class. 4. Pisces. Have 1 Auricle &

Ventricle, w.h. y. same blood as y. amphibia. They differ from y. 3 former in not breathing w.t Lungs, but instead of these are provided w.t branchia y. alternately take in & let out Water, in y. place of air. They have maxilla incumbentes, no penis, all are oviparous, & their eggs are said to want an albumen, a fact w.h I am very averse to believe. As their tegmenta, their Skin is universally covered w.t scales & they have fins w.t w.h they swim 5.th MELIA, have a Heart w.t 1 Auricle & 1 Ventricle; hardly a coloured fluid for blood. As to their respiration it is uncertain they have no Lungs, but are supposed to have somewhat analogous to them. Maxilla laterales, penis intrans, they are generally oviparous, whether universally is yet undetermined. I believe they are not. As to tegumenta they are covered w.t a hard shelly substance, Cataphracta or Coat of mail. They are distinguished from all other Classes by their Antennæ i.e. horns or feelers for directing their way &c. but indeed we are not at all certain of their use. Cl. Vermes. These have a heart w.t one Ventricle & 1 Auricle, sanie frigida, w.t regard to y.r respiration nothing is analogous to it. As to their Jaws they are various. As to their tegmenta, they are never covered w.t Shells; sometimes indeed a calcareous covering separable from y. body & distinct from it. They have neither feet or fins ——

This is a specimen of our method of distinguishing into Classes. These Classes are divided into orders. Of these orders we shall give you an example in y. Mammalia. Of y. Mammalia there are 8 orders. The first order is those w.h are not quadrupeds but instead of feet have fins w.t w.h they swim & are inhabitants of y. Water. They have y. other general qualities of y. Mammalia

These make a distinct order & are call'd ye Cete. The quadrupeds are divided into ye 7 other orders according to ye State of ye Teeth. 1. Those wch have no foreteeth below or above are call'd Bruta. Those wch have them below & not above are ye Pecora. Those wch have only two foreteeth above & below wtout lanciary are called ye Glires &c. But to take them in ye order wch Linnæus has placed them. Primates have 4 upper teeth single canini or laniarii. 2. Bruta have no foreteeth above or below. 3. Fera have foreteeth both above & below, 6 above all of them acute & sharp wch single canini. 4. Bestiæ. These have always more than one canine tooth in each Jaw. 5. The Glires we have mentioned as also ye ~~Bellua~~ Pecora. 7. The Bellua have several foreteeth wch are blunted & obtuse. After ye order ye next division is into genera of wch I shall give you an example in ye Pecora wch you are best acquainted. The character of ye order was taken from ye Teeth &c. the character of ye Genera is taken from ye horns. ~~&c~~ Under ye order are comprehended 6 Genera, ye Camel, ye Musk deer, ye Sheep, ye Ox & ye Stag & ye Goat. The 2 first have no horns; ye 4 last are horned. The Stag has solid horns wtout a hollow, branching backwards, ye other 3 have ye horns hollowed & are distinguished by ye direction of these horns. The Cowkind have their horns turned forward, porrecta, vid. Linn: Syst: nat: Vol: 1. Lastly ye genera are divided into species wch are ye individuals wch nature has created. of these I shall give you an example in ye Camel. All ye species are not yet known, 4 only are mentioned by Linnæus. The Camel, Dromedary, Llama & Pacos. The Camel has only bunch, ye Dromedary two. Llama has no such bunch on ye back, but one on ye breast. The

Pacos has no such bunches or tophi at all & is more distinctly covered w. wool. Now to go backwards & give an example of y. whole. Suppose an unknown anl. e.g. y. Pacos was presented. From its feet we reduce it to y. Class of y. mamalia, from having no teeth in y. upper Jaw we trace it to y. order of y. pecora, fm having no horns we range it in y. first or 2d. genus of those, we determine it to be y. first of y. fm its having more than one lanciarius or canine teeth, & lastly fm its being wout tophi & more distinctly covered w. wool we bring it to y. Pacos, y. 4th. species of Camel, when we have thus got its Name we look into books & find its nature, qualities & history. You see then how useful & necessary, altho seemingly laborious, this method of nat. history is. From what I have said you will understand what I mean by deducing y. Virtues of Plants med. fm y. place they have in nat. history, altho to confirm you in it, more practice will be necessary. We have now spoke of Kingdoms, Classes, Orders, Genera & species. This last is divided into Varieties, that is Variety where y. differences or marks by wh. it is known are not inherent in y. Subject, but depend on y. Soil, Climate &c. This takes place in y. anl. kingdom, but is more remarkable in y. veg. In y. last a variety is distinguished in this way viz. if y. seed put into y. ground does not propagate y. same variety, but comes up agreeing w. y. species. Now to go on wh. y. subject a little farther. I must inform you y. method in nat. history is far fm being perfect, for many disputes subsist among naturalists about y. classes orders &c. to wh. subjects ought to be reduced. This depends on y. characters assumed for ranging them at first e.g. If I were to give flying as y. characteristic of a Bird, this would not be perfect, because there are birds y. cannot fly, & amphibia y. do fly. We did much better the

to ~~fix~~ take w.th Linnaeus their character from y.e feathers, Legs &c. In y.e other method y.e bat would also be reckoned among y.e Birds, but when we find y.t it has 4 feet, is viviparous & suckles its young, it is properly placed among y.e quadrupeds. Disputes of y.e kind have often occurred & Linnaeus himself is an example of y.e ~~kind~~. Formerly y.e Bete or Whale was ranked among y.e Fishes, being an Inhabitant of y.e Water, but now Linnaeus considering y.e if we except y.e circumstance it agreed entirely w.th y.e Mammalia has very properly ranked it among them, in w.h opinion Ray has long ago agreed w.th him. In short if we assume as y.e fundamental character of fishes y.t they are inhabitants of y.e Water, we shall take in many amphibia, Shells & Worms into y.e same order. We must have regard to other qualities as y.e structure of y.e heart &c. before mentioned. There will subsist many such disputes among naturalists, w.th regard to every one of y.e divisions I spoke of. Ex. Klein of Dantzick divides animals according to their Claws, while Linnaeus divides them according to y.e Teeth. The Camel w.th Linnaeus is in y.e order of y.e Pecora, w.th Klein among y.e Animals y.t have two Claws. Linnaeus very properly ranks y.e Camel w.th y.e Pecora, for besides y.e external structure it agrees w.th y.e rest of its rank in y.e internal viz. Stomach &c. whereas merely on acct. of its Claws ranked by Klein among animals otherwise essentially different. This leads you to understand y.e difference between natural & artificial order in Nat. History. That method is artificial w.h brings together Classes &c. merely from one single arbitrary mark, or one y.t seemed most convenient in distributing these Classes, & method is natural w.h brings into Classes &c. such subjects as have

ye. greatest number of characters or marks in common. The artificial method, altho it may sometimes more easily enable us to distinguish genera, is yet on ye. whole very troublesome & confounding, & aniversally ye. method wch. is most in natural history ~~will be found~~ most, will be in practice of ye. easiest application; for besides collecting substances wch. agree in external marks, it places together those whose internal properties are in common. There are few systems where we can perceive ye. natural method. The Mamalia of Linnaeus is a very natural Class, as indeed most of his Classes are; but of this Class there are no natural orders except ye. pecora &c. The feral are nearly so, but all ye. rest are artificial distributions. E.g. In ye. Primates wch. comprehends Man, ye Monkey is properly enough set down, for besides having 2 teeth above &c. it resembles him in other internal properties; but ye. addition of ye. Bat wch. agrees wch. ye. rest of ye. order, only by its teeth, is certainly very unnatural. In his other orders, ye same difficulty is often found, to wch. on ye. subject of Land, reptiles, by attempting to reduce them to a few orders (in wch. indeed he is much to be commended) he is perpetually exposed. Other examples will occur to you, if you will be at ye. pains to look into ye. system. I apply all ye. to our purpose. I gave you this sketch of method in natural history, chiefly wch. an intention to make you understand ye. difference between nat. & artificial method. — Vegetables ~~are~~ in ye. same manner as animals, are divided into Classes &c. In every botanical method care has been taken to assume a natural one, but it has not been perfectly obtained in any, & plants of dissimilar qualities in nature are often associated together merely lege systematis as they speak. The indication of ye. virtues of plants from ye. system is thus spoke of Linnaeus in his Phil: Botanica. Plantae quae genere convenient

virtute convenient, quæ in ordine naturali convenient, virtute proxi-
mius accedunt, quæ Classe naturali convenient virtutibus quodam-
modo congruunt. This rule is more exact as you advance to ye lowest
distributions, for in nature there is no distribution certain, but
yet of species, even those of genera are much more artificial & ye higher
you rise, always more so: & for ye application of ye rule, as you
see Linnæus has carefully marked, you must have recourse to
ye natural division only; He has given them independant of
his Classes &c. in his philosophia botanica & calls them his
Fragmenta ~~ordinis~~ methodi naturalis. For our purpose then it is only
necessary to study nat: history in this way, & you may generally al-
low ye substances of ye same nat. order are somewhat of corres-
ponding virtues. Thus Jalap, Mechoacanna &c. are very properly
ranged together. And in looking over his List you will find ye ma-
jority of those he puts together, to be of ye same virtues & per-
haps we should find them still more so, if they were all employed
in Medicine. But there are often exceptions & Linnæus frequently marks
them wth a doubt or sign: interrogationis. So much may be said
in favour of ye general rule. But tho it may, as an Analogy, serve to
direct us in ye beginning of our studies, yet it is sometimes found
fallacious, when we apply it to particular purposes, so ye we should
always be on our guard in using it. Cinnamon, Camphire & Ben-
zoin are ranged together. All these indeed agree in Aroma, but their
particular virtues are very diff^t. Many examples of ye same kind
occur & no wonder when even in Varieties ye virtues are very diff^t &
even in ye same part of ye plant, as in ye aromatic rind, ye bitter rind
and Juice of ye same Orange. Besides in Medicine we often use

diff.t parts of y.e plant of y.e same species. Thus of Senna & Cassia, in y.e one we use y.e Leaves in y.e other y.e Bark, parts w.h are found to be of diff.t virtues. If y.e Leaves of Cassia were employed it is probable y.e general rule would apply. Our preparation also of a plant will alter its virtues. An example of w.h you had formerly in y.e Cassada. I shall range my subjects according to y.e natural order, & I shall not neglect to mention in how far they contradict y.e general rule.

There is nothing about w.h Physicians have been more anxious than in finding y.e best method of investigating y.e virtues of unappreciated substances. Various have been y.e methods for y.e purpose & many more than those I have mentioned. All y.e methods w.h I shall to employ are mentioned in y.e aphorisms of Linnous w.h I have already set down. I have now explained y.e first means of Investigation viz: Systemate. I should next proceed to y.e 2d means viz: Localitate, but previous to y.e I shall take notice of several other aphorisms of Linnous & 1st of y.e concerning y.e soil or as he calls it y.e locus of plants. It is this: Locus siccus rapidus, succulentus insipidus, magis aquosus corrosivus reddit. This rule may in some measure be admitted on y.e same footing as other general rules, but like them has also a great many exceptions. Thus rice & rye, both of them bland nutritious substances are exceptions to y.e rule. Rice must grow in some measure in ⊽, while y.e Rye delights in a dry soil. The Beccabunga is a very mild plant, y.e Hyosciamus one of y.e most acrid, & yet y.e former grows in a watery & y.e latter in a dry situation. Even plants of y.e same genus will be diff.t tho they grow in y.e same soil. eg. y.e Cicuta

mitis & urens. Upon ye whole this rule seems to be taken from a few observations & those chiefly on ye order of ye umbellatæ. I imagine ye two Soils mentioned first ye siccus & succulentus will apply but to ye same plant growing in diffr Soils. Thus an aromatic in a dry Soil is in ye greatest perfection, while transplanted to a rich moist one it loses its fragrancy & becomes insipid. This does not so well apply to the species — Another Aphorism of Linnæus is still more general viz. Lactescentes plantæ communiter venenatæ sunt. For my part I have met wth no exception to ye rule, & even those wch have ye milky consistence, tho wout ye colour generally agree wth it. Linnæus himself gives some exception eg. The semiflosculosæ, an order of plants wch we had occasion to mention as used in aliment. All these give milky juices but are however no certain exception, for several of ye class are of a deleterious qualities, & if those we employed as food were allowed to attain their full perfection they would probably be found of ye same kind. It is on ye acct. ye we blanch them or use them only when young. Linnæus in a note adds another Exception, ye Campanulatæ, wch in general are milder than ye former, but as some of them are of dangerous qualities ye general rule ought still to make us cautious concerning them & all other lactescent plants ye are unknown to us —

I now proceed to ye investigation of plants ex qualitate i.e. according to their taste, smell &c — Linnæus aphorism here is Insipida & inodora vim medicam vix exercent. This rule seems to be wout exception, & it is on ye acct. & not on any proper experience ye many plants are expunged from ye Mat.

pred: as having no taste or odour wd. should point out in them any active qualities & most such I believe are employed as Medicines. This the general rule: Sapidissima & odoratissima maximam vim medicam possident, I cannot admit so indiscriminately. For ye odour of plants often resides in a portion inconceivably small, whose effects must be very inconsiderable, neither must we take ye medical virtues merely from ye poignancy of taste as ye is often deceitful. Thus Ipecacuanha, a medicine of active powers, has no smell; as to ye taste it is very often latent & not found till long chewed. On ye contrary ye cresses kind tho of considerable poignancy of taste are endued wth very small share of medical powers, at least not wth a vis maxima. However as ye want of odour & taste repeals ye supposition of medical virtue, we may on ye whole conclude yt those wch possess them have more or less of such; ye difficulty is to ascertain ye degree. With regard to odours I find ye very difficult as they are of such infinite variety, & of so little resemblance as makes it very difficult to reduce them to any general head, so yt hence we might derive particular virtues from ye diffnt kinds of them. Linnaeus has attempted a distinction of ye Sort: the simply fragrant as ye Violet & Wallflower &c. ye Ambrosiaca as ye asperula. By ambrosiaca he means somewhat of a musk & gives us another example ye Malva moschata, but by ye by I take to be an evidence of very strong odour being sometimes no sign of great medical virtues; for ye plant it has no considerable virtues. Another odour he mentions is ye aromatic, comprehending under it Thyme, Lavender, saffron, Cinnamon, Sassafras &c. All these are of a distinct odour & any

any resemblance they have is not found to be supported by their virtues in medicine, wch are found by experience to be very different. Besides these there is a kind somewhat between ye fragrant & fetid, wch I would call ye gravolentes, such as ye of Cammin, Lorian, Verbene &c. The more directly fetid are as much to be distinguished from each other as ye aromatic e.g. ye difference of ye rue & ye is very diff. from ye stupifying odour of tobacco or opium. Upon ye whole very little can be determined wth precision of ye virtues of plants, from their odour.

Linnaeus uses ye other general rules, Sapida & suavolentes bona sunt, nauseosa & gravolentes venenata sunt, will often be found false & in many cases ye reverse. Thus almost all ye Lily kind wch are certainly suavolentes are poysonous as also ye Jasmine & on ye other hand ye nauseous & fetid are often without any dangerous powers, while those altogether inodorous often poyson them. Linnaeus also says ye sapida non agunt in nervos, nec olida in fibras musculares &c. This depends on a nice physiological distinction, & if as I think ye moving fibres are continuations of ye Nerves or at least intimately affected by them, whatever acts on ye one, will certainly also do so on ye other. This may be sufficient in regard to smell. Taste is of considerable more use than smell in determining ye virtues a priori. Authors on ye subject have generally stopt at generalities. Linnaeus is very imperfect upon it, Mr Abercrombie has also touched on ye same subject, but from Dr J. Hoyers treatise, tho at first attempted wth imperfection, I find I am able to draw ye most useful hints

ste labours under ye same difficulties as odour. The perceptions from ye
ome impressions vary in smell remarkably, in taste considerably so.
here is not only ye same difference of what is grateful to one, not
eing so to another, but also a difference wh. regard to impression
What is acrid to me, may be almost insipid to another. If is
not wh. regard to sweet & bitter so ye men differ, it is wh. regard to
mpound tastes in expressing wh. there is no small difficulty.
But as ye subject leads farther than any other to ye knowledge
f unexperienced substances, I shall as a foundation for observa-
tions afterwards to be made upon it, give somewhat of an ar-
rangement of tastes —

Insipid. This is of 3 kinds, ye watery mucilaginous & oily, or
ll of wh. we judge properly of ye consistence & not of ye impression
Taste. Of taste or sapidity I shall first take notice of one in
ommon to ye whole vegt kingdom viz. The herbaceous. In many
plants we have ye perception joined wh. many others, so yt. how-
ever ye herbaceous lurks under ye whole & in common to ye whole plant
metimes again it is simple as in Chick. The herbaceous is
ly ty mixed wh. more or less of ye oily pungent saline call'd
nitrous taste as in raw beets, spinage. Another difference of
belongs to ye Leguminy call'd ye pea taste found in ye leaves
pears & other leguminae —

Acid. This is simple & pure in some fruits of a watery consistence as
oranges separated from ye rind.
ept to ye is ye austere or stiptic taste as ye in Galls or ye barks
f trees, in wh. last it is as fundamental & common as ye herbaceous taste

plants. Acerb is often compounded wth. acid or austere, but is of
ten a compound of both. All fruits in their unripe state are
erb, some of them always remain so as Sloes. Between y^e.
d & acerb there are intermediate degrees. Lemons for instance
ve a degree of acerbity along wth. their ~~austerity~~ acid.
Sweet. eg. Sugar. This is seldom pure & commonly united & com
unded wth. acid as in y^e. acids-dulces & y^e. again has commonly
mewhat of acerbity along wth it. Sweet is also united wth. austere,
roducing what Floyer calls y^e. Fern taste. This is obvious in
Polypody, Ferns &c —
he next simple taste is y^e. Bitter. This is seldom pure, often
ompounded wth acrimony, aromatic or austere. To me an instance
f ye pure bitter occurs in Gentian —
he pure acrid is difficult to find. An example occurs in Guinea
epper. When an acrimony is joined to fragrancy of odour it
aromatic. This is more or less pure. Cinnamon is an in
ance of ye purest aromatic. — When an acrid is joined wth. a
greeable odour, it may be called fœtid or nauseous. Some how
r take ye nauseous as a simple taste, [illegible] instance of w^th.
given in Opium wth. is neither bitter nor acrid —
hese are all ye simple tastes. Various are ye tastes compoun
d of these, the austere bitter of rhubarb, ye aromatic bitter as in
range or Lemon peels, ye nauseous bitter as in Assa fœtida, y^e
ulcior bitter of Floyer wth he calls ye smoothy or sooty bitter &
ualists ye amaro frigid as Lettuce &c. The Laurel bitter w^th
commonly enclosed in shells, as bitter almonds, kernels of black
herries &c. The balsamic or terebinthinate bitter as y^e of ter

tine, resins &c. are examples of compound bitter & probably ye. foun-
tion of all their varieties.—
tastes of compound acrids occur in ye. bitter acrid as Curcuma, ye.
nauseous acrid wh. is commonly purgative as Senecka in chewing of
you have a succession of tastes insipid, sweet, nauseous, acrid
commonly as I observed just now serves to distinguish purgatives
compound aromatic tastes occur in Ginger. Cinnamon I have
id is purely aromatic, in Ginger ye. acrimony is more evident wh.
of ye. aroma. It is thus we distinguish between ye. acrid aromatic,
ye. aromatic acrid—
Garlic acrids occur in Onions, Garlic, Onions & others of ye. Class
his list of Tastes is very far from being complete. However I found
t necessary to give it, in order for a foundation for more accurate
distinctions, as they are ye. leading agents of judging by analogy
On ye. whole ye. Virtues of substances accompany pretty constantly
& regularly their peculiar tastes especially if they are simple. In
compound tastes we ought always to hesitate, for ye. virtues of a
medicine are often found to reside principally in a very small pro-
portion of sapid substance, wh. admidst ye. co[illegible]ion of other tastes
will often discover itself imperfectly & obscurely if it is not hid alto-
gether. As to ye. simple tastes ye. pure austere is astringent, ye.
most nutritious & ye. pure bitter of ye. same virtues wh. ye. rest of ye.
kind, but more of this shall be observed afterwards, when I come to treat
of particular substances, as I shall arrange them sometimes accor-
ding to their uniformity of taste.—
Colour. Linnaeus has also taken in colour, as ascertaining ye. virtues
of meds. His Aphorism is this. Color pallidus insipidum, viridis

Luteus amarum, Ruber acidum, Albus dulce, Niger ingratum indicat. All this of colour is less useful than ye. odour, much less so than ye. taste & is very far from being general. Luteus amarum indicat. If formerly observed ye. lactescent plants & such as were of milky consistence, were often poysonous & had a degree of acrimony & bitterness wch. then If Linnaeus then had said ye. ye. yellow Juices of plants were acrid or bitter, his rule would have been much more general. The yellow Plum is an exception. Ruber acidum. This is not founded. It is applicable only to fruits, wch. in proportion to their redness have often their acidity turned to acid, for many flowers &c. are red wch. have no acidity. Several plants wch. are of a green colour are acid as Sorrel; but Linnaeus says these are only such as turn red in Autumn; but surely ye. Brassica wch. is of this kind has no acidity in it.

Viridis crudum. This observation is only relative, being applicable only to fruits, wch. in ye. progress of their growth change their colour wch. their maturity.

Pallidus insipidum. This is still a greater mistake, for pale plants are far from being in general insipid. Linnaeus means here those plants, wch being naturally green, attain by blanching a white colour.

Albus dulce. This rule is relative to fruits. Thus ye. white Currant is sweeter than ye. red. Whether it applies to Apples, Plums, Pears &c. is a question. Certain it is ye. red plum is as sweet as ye. white &c. this rule as well as ye. rest is of very little use.

Niger ingratum. This is farr from being conclusive altho when a general rule of this kind leads to an important caution it ought

it most properly appears from this, ye. V deposits a part of what it takes up in boyling, on growing cold. I am to speak of particular astringents. These I shall refer to 2 heads of fossile & vegetable, & they are absolutely of diff. Natures.

Fossile Astringents

These are subdivided into 3 Classes; the Earthy, Saline & Metallic.

1. Earths

These are a Set of Substances wch. formerly entered into ye. Mat: Med: in a considerable number, but of late ye. number has greatly diminished & of late very few are employed. All of them may be reduced to these 3 heads: Bole, Clay, & Absorb: Earths. Naturalists have hitherto been pretty much divided about ye. distribution of Earths. Those who are averse to employ ye. chemical qualities in nat: History have sought for other marks to distinguish them. Thus Dr. Hill & some others have distinguished them according as they are more or less diffusible in Water, Boles, Marles &c. But this being only a difference in degree is not a proper distinction. Whatever this may be in Nat: History certainly in Medicine ye. division into Absorbents, & those ye. are not so, is much more convenient. Of ye. Not Absorbents are ye. Boles & Clays, of ye. last kind ye. Absorbent Earths, of wch. Spoccella is an example.

Boles

With regard to ye. term of Bole, ye. application of it has been various at diff. times. The Boles of ye. Ancients eg. ye. Bole of Galen seems to have been our Absorbt. Earths, whereas ye. Boles we employ are not absorbents for they are neither soluble nor effervesce wch. acids in ye. cold. Their variety is very considerable, but we need only make one distinction of them, ye. those of ye. greatest purity are best & only fit to be employed. They are freqtly adulterated, for ye. Druggists at home seldom take ye.

trouble of bringing Boles from Asia, for they have Boles at home of ye same quality & virtues, only wanting their colour, wch they give them by making a mixture of ye purest white Clay & red ochre, wch however it may be afraid in trade answers equally well in medicine. We have been searching ye Boles, & I think for my part we might altogether reject them. Their Virtues are very inconsiderable. Applied to ye tongue they give a certain rough taste & appear astringent. But in my opinion it is only an exsiccating quality, imbibing ye moisture of ye tongue, for when pure bole is diffused in ℞, no such effect is observed. With regard to earthy meds. ~~little~~ no great effects can be expected from them as they are not soluble in our fluids, & in therefore in order to render them fit for medicine they must be previously combined wth acids either by nature or art, or if intended as exsiccants they must be given in such a monstrous quantity as entirely to overload ye stomach. As to Boles they may contain several other substances wch may make them act more powerfully as astringents e.g. Iron wch most of our red boles contain. Perhaps they are already combined wth an acid, or if not may be dissolved by that in our stomach, becoming in ye way medicated. Many also contain Allum & on ye acct may be medicated substances, but in these cases it is only on acct of ye Vitriol & Allum they contain, & it certainly would be much better to use these substances by themselves, than in such an uncertain manner as they must be in these combinations —

I ~~forgot~~ should have mentioned ye boles were hardly dissoluble in acids except when very concentrated or assisted wth much heat & ye it is now known ye ye Earth of Allum is furnished by very bole & Clay wch may be extracted by very acid, even ye weak vegetable, & so likewise by ye acid in our stomach, in wch View also they only act as Allum —

encreased action depends on ye. irritability or mobility of ye. part astringents act by diminishing ye. impetus of ye. nervous fluid & so taking off ye. encreased irritability & encreased action. As spasmodic affections often arise from encreased mobility or irritability, astringents as taking off these have been reckoned antispasmodics.

4. Astringents are more universally indicated in encreased evacuations, depending on laxity of ye. simple solids or mobility & irritability of ye. moving fibres, in wh. last case their action has been commonly confounded wh. their action on ye. simple solids —

5th. Another Indication in wh. Astringents have been employed is in ye. case of Wounds. There is no term more freq.t than ye. of Vulneraries, wh. are commonly astringents. I said formerly ye. most Vulneraries were built on an imaginary foundation, but upon considering ye. matter more nearly, I now see a case where they may be used in some such view viz. In those ulcers wh. are consequent upon wounds. It is but a late discovery ye. internal med.s promote ye. formation of pus in ulcers. For this purpose ye. peruvian bark has been effectually employed, wh. I constantly consider as more or less of an astringent, for in other cases where peruvian bark has been used, as in fevers &c other astringents have been successfully substituted, so ye. I imagine somewhat of a common virtue in them, & hence we may suppose ye. our astringents as well as ye. bark may be favourers of suppuration in wounds & ye. we may in some measure restore ye. term of Vulnerary —

Diseases or Cases where they are contraindicated.

1. They may be hurtful by inducing wh great a degree of constriction on ye. system & thus are there instances of a sense of fulness being

brought on by their use, wch. must either depend on an over ~~proportion~~ quantity of fluids ~~to ye quantity~~ in proportion to ye solids, or on a constriction of ye solids.

2. Excess of ye use of astringents may destroy ye mobility of ye moving fibres & it is for yt effect ye they have perhaps been justly accused of a deleterious poisonous quality, bringing on fabrics &c. & weakness & flaccidity may as well appear from taking off ye mobility too much, as by any other means. These effects appear in ye suppression of ye natural & necessary excretions, so ye in ye use of astringents we should never proceed so far as to hazard ye stoppage of these. I formerly mentioned one principle use of astringents, to be in stopping encreased evacuation. Here by ye use of astringents, if we proceed carelessly we are apt to run into extremes & there is nothing more difficult in ye practice of physick than to judge ye degree in wch. astringents are to be given without injuring ye healthy evacuations, as well as ye kind yt are proper. Mat: Med. Writers are very imperfect on this head & commonly under each astringent they tell us it is antidysenteric & a medecine for ye diarrhoea &c. But they ought always to have added these 2 Cautions. 1. That astringents never ought to be employed where ye morbid stimulus or acrimony wch. produces or continues ye disease, has not been previously evacuated, for then occasion is given it to ferment, to multiply itself & assimilate other fluids to its nature, wch. will cause ye disease to return wth. accumulated violence, or if ye astringent has been so strong as to prevent ye effect, it will cause ye acrimony to fall on other parts of ye system, perhaps wth. more dangerous consequences. This general rule requires some nicety in ye application. Too great an attention to ye acrimony is not always necessary

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Another view of these matters is ye. these encreased evacuations often depend on a determination of fluids to particular parts as in a plethoric habit to ye. nose uterus or lungs &c. may be established by laws of ye. system or by habits &c. are equal to these laws. If then we use astringents here we may lose our labour or what is of more importance by suddenly stopping ye. flow of fluids to these vessels & so suddenly by changing ye. balance a determination is made to places of more consequence where disease is of more danger. Evacuations often take place also in consequence of a constriction of ye. surface determining a greater flow to ye. intestines. There is no method of remedying this but by giving way in some measure to ye. Evacuation or causing ye. determination some other way & till this be obtained astringents ought never to be used. If ye. determination has not continued so long as to establish a law, then we should endeavour to return it by ye. Skin, its proper Emunctory. There are ye. chief cautions in ye. use of astringents. There are still two others. One arises from this observation. viz. that altho I have said ye. astringents when taken into ye. Mouth extend ye. action over ye. whole system, yet ye. ye. effect must be greater in ye. parts vis to &c. they are immediately applied, so ye. in ye. exhibition of astringents we must take care not to suppress ye. natural evacuations while we only endeavour to check ye. morbid. Another caution is ye. in all these cases where astringents are to be employed as roborants, they ought to be given in only in small doses & at proper intervals, for in ye. indication we only intend to give such an astriction as by encreasing ye. strength of ye. vessels they may be enabled to propel their fluids properly. Thus when we use Wine as an Astringent, we must observe ye. Caution, for if we give it in large quantities, such a sudden constriction may be induced as entirely to counteract our intention.

~~If we taste~~ applied to ye tongue they have a manifest power of corrugating & contracting it. The parts of ye palate are contracted & by ye means become very sensibly rough. The Vessels of ye Lips, through w^h, as they are only covered w^h a thin membrane, ye red colour of ye blood may be readily discovered, by being rendered denser, ~~as the~~ Lips lose ye natural colour & become pale.

We now go to ye. means of discovering ye. Virtues of Astringents.
The 1st. means of knowing astringents is by ye. ~~experienced~~ effects in arts particularly in ye. art of tanning leather. Several Societies have been employed in finding a variety of substances wch. may be employed in ye. way & accordingly produced a large list of Vegts employed, or wch. may be so, in this way, besides Oak bark. We may allow ye. all ye. plants wch. are found in these lists may be concluded Astringents & in proportion to ye. effect they had in ye. tanning process may we infer their astringent virtue in animal bodies. Here however a caution is necessary, for such substances besides their astringency may often be accompanied wch. other matters wch. may render ye. use noxious. Perhaps it may be said ye. several of these substances given by these Gentlemen in their lists were employed on a previous knowledge of their astringency, but ye. does not contradict what we have said of substances wch. answered in tanning being capable of being used as Astringents: if they possess no other noxious quality ——

Another means of discovering astringents is of ye. decoction thrown into a solution of green Vitriol strike a black colour & form an Ink, & those substances wch. thus give ye. blackest Ink, provided they are not accompanied wch. any peculiar acrimony, wch. ~~discharge~~ forbids their use as astringents, may be reckoned ye. strongest & best. This however is only applicable to Vegs. Astr. & I know no exception to ye. rule.

3. Astringents are discoverable by an austere or acerb taste. Some are endued wch. an odour, but ye. is a separate matter accidentally accompanying them & adds nothing to ye. astringent Virtues for true & pure astringents have an acerb austere taste without odour for when ye. odour is great & joined wch. other substances we must reject their use as astringents ——

I shall now treat more particularly of ye use of astringent in general, but previous to that I think it necessary to recapitulate ye general heads or propositions which I laid down in my last lecture on ye use of these remedies. I hope you are aware of ye extreme importance of these parts of my subject; you may be assured that your future success in practice depends on having a proper Idea of these general principles, & tho it is not my province to deliver a history of diseases, yet I am convinced you will never be able to form any judgment ~~about ye propriety~~ of ~~recard~~ ye proper method of cure unless you are well grounded in these principles — Diseases require different treatment according to ye different Age, Sex, Climate, Temperament & stage of ye disease; any one single method ~~given~~ that is laid down for ye cure of a disorder must of course be liable to exceptions: This is never ye case when we treat of general Indications taken from ye particular symptoms that indicate: for these will always ~~be~~ require ye same remedys let them occur in what disorder & under any circumstances; & if you observe any deficiencies it must be ascribed to my manner & not be attributed to any ~~deficiency~~ defect in ye plan —

Parts of Vegetables where Astringency is lodged.

I think ye austere Astringents are lodged universally in ye solid parts of Vegetables, most commonly in ye bark, freqtly in ye wood & sometimes in ye root, & indeed I imagine there is an adstringency in ye solid parts of all Veg: & ye in most it is only accompanyed wh. other parts wh. prevent our perceiving it. The acerb astringents are found in ye fluid parts of plants & ye commonly in ye Juices of unripe fruits or perhaps in other unripe juices of plants. The Chemists have gone farther in ascertaining where ye astringent part is lodged. They allege, perhaps wh. some propriety, ye it always resides in ye earthy parts, wh. they have supposed to form ye astringency by being joined wh. an acid. In ye acerb astringent some acid is found, but in austere astringents none such have been found even on chemical trials & they are indeed vehbalances wh. themselves attract acid. In ~~ye acerb~~ what rest ye astringent virtue resides is uncertain. Here however I may observe one fact viz. ye all astringents act more powerfully in substance than in decoction or any other method of preparation, for our stomach has powers of solution wh. we cannot imitate out of ye body. Here saline astringents are excepted e.g. the Vitriols for it is indifferent in what form they are introduced. It is however often necessary for ye more conv: exhibition to extract our astringent & employ them in a fluid form wh. leads us to ye pharmac: treatm.

Pharmaceutical treatment of Astringents.

By Newman & Cartheuser expts it appears ye astringents are equally soluble in V & alcohol. They say a spirituous menstruum is best & ye V ~~more~~ extracts more, but all is not ~~extracted~~ astringent wh. is extracted, but so much of other matters adhering. The proof of ye say they is ye ye reputations of both are equally insipid. That a spirituous does it

Solution & Extraction by diff.t menstrua has been proposed but we are afraid on as weak foundations for discovering ye vir tues of remedies as any of ye former. The menstrua used are com monly Water & Alkohol. The resinous parts extracted by alkohol are commonly most active, altho this is far from being general, as ye gum my parts are so. But this as leading to & being ye foundation of ye pharmaceutical treatement I shall always insert for ye best authors and give observations in consequence.

Adstringentia.

I have formerly explained ye distribution of particular substances. We distributed ye diff.t med.s according to ye Indications & if there were one & ye same, according to their common operation on ye human body. The order of ye several indications was this. 1. According to their operation on ye Solids or fluids. The operations on ye solids are divided into 2 kinds. 1. as they act on ye simple solid. 2. On ye solids viva or those organs of animals whose properties disappear w.th life. With regard to ye generalities I need not hint ye it is impossible to be absolutely correct, for there is no distribution w.th is not liable to very great difficulty. We have however given ye w.th to us seemed ye best, for in ye beginning of Study we ought to acquire general propositions & afterwards find out exceptions or apply them to particular cases. We now begin w.th those med.s w.th act on ye simple solids. These are of 2 kinds. 1. as they increase, 2. such as diminish ye cohesion & strength of ye simple solid. Those of ye first kind are what are strictly Adstringents, called also Constringents, Astrictives, Tonics, roborants &c. as we have formerly mentioned. This is ye simplest view of them & what we must here necessarily take. With regard to ye as well as all other heads we shall endeavour to show their manner of action on ye human body, ye diseases to w.th they

a[illegible]ted, the particulars wherein they are hurtful, in what manner ye virtues are discovered or discerned to be present, & along wch ye particular part or parts in wch ye virtues reside, wch leads us lastly to ye pharmaceutical rules for their extraction ——

As to ye operation of <u>Astringents</u> some people have imagined to themselves a very simple theory. And fibres they supposed or considered as composed of solid earthy particles adhering together in a line by means of a glutch composed of ℞ & oil. Side Boerhaave. Now wch regard to encreasing ye cohesion of these fibres it may be supposed to depend on ye propinquity of ye particles. If then we insinuate between each particle another of ye same kind we encrease ye cohesion of ye fibre & in this manner have astringents been supposed to act. This theory is very uncertain & there is no instance in other parts of nature of encreasing ye cohesion of bodies in ye manner. Even in ye coagulation of fluids wch is analogous to this we cannot certainly say it is performed by ye interposition or insinuation of particles of another kind. Some appearances however seem to contradict this, thus ye coagulation of whites of eggs by spt. of wine may be supposed to be by ye insinuation of ye particles of Spt. of Wine between ye of ye albumen & so attracting them to each other. To me it seems rather owing to a decomposition ye Spt. of wine attracting ye ℞ & so ye solid parts running together. Coagulation seems to be a decomposition or detraction of some parts in ye same manner a fluid vol. alkali forms wch ye Spt. of wine ex Ofa Helmontii, by attracting ye ℞ of ye vol. alkali ——

A simple fibre then being composed of fluid & solid ye cohesion of the whole may be encreased by diminishing ye watery substance or addition of solid. It appears to me ye astringents act more in ye 1st way by exsiccating or absorbing ye fluids interposed. Thus ye operation

[illegible] which is entirely analogous to ye. is carried on almost entirely by absorption of fluids.

So much for ye. action of astringents on ye. simple solid fibres. And I am now to observe ye. it is impossible to keep to our first resolution of separating bodies which act on ye. simple solids from those which act on ye. moving fibres. Astringents then must have a double action 1. On ye. simple solid, 2. On ye. Solida viva or ye. fibres of living bodies. If ye. action was only on ye. simple fibres it must be confined to ye. part, to which ye. substance was directly applied by absorbing its fluid or increasing its solid, whereas we see ye. effect propagated to ye. rest of ye. body. Thus Alum applied to ye. tip of ye. Tongue does not stop in its action there, but independant of diffusion induces contraction & corrugation over ye. whole mouth. If then astringents taken into ye. stomach extend in a short time ye. action over ye. whole system, I maintain ye. it is owing to ye. effects on ye. moving fibres. If then we look to an astringents action on a particular part & then its operation over ye. whole system, it is inconceivable & almost impossible to allege ye. dose can be so divided as to be conveyed to every particular part far less to ye. morbid part. We must therefore suppose some other reason & ye. effect on ye. system is in consequence of ye. universal sympathy of ye. stomach, or when we give an astringent internally in a hæmorrhagy of ye. Uterus it is impossible ye. a small portion of an astringent can be so divided as to be carried there, lest that ye. whole of it should be so to produce ye. effect. The propagation of Virtues then, as all other effects on ye. nervous power is only explicable, but as innumerable instances occur of it, we must admit it as a fact.

Hitherto we have only considered astringents as acting on a particular part, but they may also be considered in diff.t Lights. e.g. Certain Stimulants

may be astringent. Then encrease ye. contraction of ye. moving fibres & are either tonic or clonic producing a simple contraction wh. remains, or oscillatory motions. If such then as produce only ye. simple contraction exist they must be astringents. Of ye. I shall afterwards speak under ye. head of stimulants. There is another view in wh. Astringents have been taken viz. That of stopping encreased evacuations. Whatever diminishes these must be astringent & it is almost impossible to separate ye. stopping of evacuations from ye. operation of astringents in this view —

This introduces some confusion, as ye. means of stopping evacuations are very various. 1. Increasing ye. contraction of ye. last simple fibre. 2. By ye. moving fibre. 3. By lessening ye. impetus of ye. blood on a particular part. Here then Sedatives are astringents & astringents sedatives. Sedatives ~~act~~ Operate by diminishing ye. influx of ye. nervous power or its mobility, & so are what is call'd refrigerant. In ye. view rather then, as Evacuations often depend on too great influx of ye. nervous power, or ye. often on mobility introduced by acrimony, Stimulants may be astringents as sheathing ye. acrimony. There may be other means of stopping encreased evacuation, wh. may be referred to ye. head. All obstructions may depend on causes, either a contraction of ye. solids, or a coagulation of ye. fluids. If any med. introduced into ye. body wh. coagulate ye. fluids they are certainly astringents. So much I thought necessary to say on ye. diff. views in wh. astringents may be taken. We now go on to consider ye. Diseases in wh. astringents are indicated. These naturally follow from what we have been saying. 1. They are indicated in laxity of ye. simple solids. This is ye. object of their operation wh. has been usually commonly considered. However I have a doubt whether ye. laxity so often takes place as is imagined, for ye. state of ye. simple solids seems permanent & fixed, or varied so insensibly & slowly by ye. age of ye. and for ye. course of a year, far less ye. of months &c we can conceive very little change of laxity or rigidity of ye. simple fibres, produced or indeed remedied

time, wherever we see weakness we deduce it from laxity of
y. simple fibres, but y. never occurs except in very few instances.
These I think are scarcely more than y. following viz. Application of
Emollient in over proportion to a particular part, an overflow of moi,
ture, as y. dissolution of y. bones in y. Rickets, or an overstretching de,
stroying y. tone of y. part. These however are but rare Cases, & such
laxity of y. simple solids as is commonly imagined, I can neither sup,
pose or believe, so y. this indication from y. laxity of y. simple solids
very seldom takes place. I think astringents seldom act by re,
storing y. cohesion, I admit that they may in topical application
but w. regard to internal action I cannot conceive them capable of
being applied to y. ultimate fibres in y. common course of circulation.
I indeed can easily suppose this distribution through y. sides of a small
artery, whose sides again are supposed to consist of fibre disposed along its
sides &c. To me y. nerves seem y. ultimate fibres of y. human body
through w. a fluid is distributed by filtration along their substance, in y.
same manner as in Vegitables, so y. in these a very small proportion
of astringent may produce a very great effect, from y. sympathy of one
part w. another

Astringents are indicated in debility of moving fibres. This manifestly
often takes place, & may be deduced in a month or a moment, for
motion of y. nervous fluid may be arrested by y. least affection. These
are y. Cases where most universally astringents are necessary & in
they most commonly act

Astringents are indicated in an encreased action of y. solids. I es,
plained before how an encreased action of y. solids may often depend
on irritability & not on encreased strength. In all these Cases where

d. Black Cherries in contradiction are equally harmless w.

finishes what I had to say on ye. sensible qualities. Another method of examining & detecting ye. Virtues of plants is by chemical Analogy.

Chemical Qualities.

From chemical investigation much has been expected, but it is now known little can be obtained. The first means of employing Chemistry to ye. purpose is by ye. destillatio per se. It is now known ye. ye matters hence produced are ye. same in all plants, this proportion only being diff.t in diff.t substances. It serves however to distinguish between anl. & veg. substances, ye. 1st giving a Vol. alkali ye. 2d an acid in ye. 1st part of ye. destillation. The fungi however & esculent mushrooms according to Geoffroy give out a vol. alk. on ye. first part of ye. destillation. If any other such be found we may conclude them among ye. more putrescent veg. substances & of peculiar qualities. Chemical analysis may be employed in such a case as ye. following viz. of an expressed juice presented to us which has come fm abroad. If such gives out a Vol. alkali in Sion we may conclude ye. ye substance was very nearly anl. or indeed what is more probable ye. it has undergone ye. putrefactive process in transportation. With regard to the acid of Veg. I do not know whether it will bear any application, for it is not only varied in diff.t Veg. but also is not regular, ye. is in any determinate proportion to ye. Virtues of ye. recent plant, ye. w.h in its fresh state has least in it affording sometimes most in Sion. The quantity of Vol. alkali is also much diversified, but from this I am of opinion we might determine

ny
an: food.

were allowed me it is possible I might go through a great
ny distillations in order to determine what influence ye. diff.
rence of proportion might have. The expts of ye. French academy
are not properly compared or ye. subject of ye. proportion of
diff. principles by chem: analysis. 1. W. regard to ye. 2d. Rector
some have given it wout decomposition & allowed it to pass
over unnoticed into ye. Receiver or allowed it to mix indiscrimi
nately wd. ye. other parts. 2. Acid is grossly estimated fm ye. pro
portion of water whereas in all cases it ought to be determined
fm a further rectification. 3. Alkali is still more imperfectly computed
being never estimated but in so far as it appeared in a solid form, whereas
some of it is always in ye. phlegm & some of it united wd. ye. acid into
an ammoniacal salt. Neither in ye. 4th place is ye. estimate fair wd. regard
to ye. oil. They have always neglected ye. cb. in ye. charcoal whose black
ness is often owing to this, & in my opinion ye. diminution it suffers
of weight in ye. open air may always be reckoned as so much oil
of ye. subject. Upon ye. whole altho ye. subject had been properly exp
cuted it is uncertain what applications might have been made fm
it, but as ye. matter is at present, I shall always neglect it in talking
of medicines.

Another less violent Chemistry has been proposed by Lemery viz. Fer
mentation, but ye. in my opinion would as much alter our sub
ject as fire.

Another method of investigation has been proposed fm ye. essential salts
but ye. has been so little followed ye. I do not know what can be drawn
from it, & indeed they generally arise fm a decomposition. However
if they be in very great proportion some judgment may be formed
as eg. a large proportion of sugar may be inferred nutritious.

[illegible] attributed to them & I believe chiefly on y. authority
of absorbing alkalis w. is deduced from y. supposed
stopping y. Dysentery. But upon frequent trial I have found them
no better no better than calcined Hartshorn. Let us consider this theory.
says y. as containing a Vitriol they contain a Vitriolic acid of w.
part may be got by distillation. This however is very inconsiderable.
have not yet tried how far they may be considered as antiseptics
y. manner of Dr. Pringles Experts.

Cimolia

like other terms has been left undetermined. As it stands in our
Dispensatories it implies a pure white pipe Clay & y. Cimolia
purpurea a Fullers Earth. These are more properly argillaceous y.
[illegible] & free of any foreign matter. Their effects in med. were
never remarkable & they are disregarded in our present practice. Tho
as they may possibly furnish an aluminous matter they may
act as astringents. — Ostreocolla

have set down y. as an instance of absorb. earths, many more of w.
will be found under y. title of antacida. I am here only to consider
them as astringents. Ostreocolla is a calcareous earth w. has been say
lended in V & afterwards deposited & concreted in a powdery
form on diff. substances, especially y. roots of plants, & from y.
other matters being separated by putrefaction or otherwise called
Ostreocolla from its then being like a hollow tube. Hence also it was
employed in y. cure of fractured bones & hence probably too y. sup
position of absorbent earths being astringent. I do not think this
founded in one single instance. With vegt. acids they even form
a laxative substance, nor do they show any austere or styptic
quality to y. taste. Formerly we employed an and. earth prepared
from bones & especially hartshorn w. was, when calcined, partic
ularly used in astringent decoctions, as y. Decoct. alb. I shall

here observe that this is an insoluble substance hardly yielding to acids
& only as uniting wth. acids do earths seem to act in y^e. human body.
Instead of calcined Hartshorn we have now introduced into y^e. Pharmac.
also: Chalk & Crabs eyes, tho I am afraid on no good foundation
as Chalk united wth. acids has no astringent quality, but is rather
laxative. Besides Dr. Pringle has found them to have a septic
quality viz. by absorbing y^e. acid in y^e. stomach &c. w^h. obviates y^e.
putrescency in some measure. If instead of these we were to throw
in a Cimolia, no such effect would be produced, for all Clays con-
taining an aluminous earth y^t. tho y^e. extract y^e. acid in y^e.
stomach, yet wth. y^e. form an Alum & thus acts an astringent
However I believe upon y^e. whole y^t. calcined Hartshorn is preferable
to Chalk &c. w^h. we now employ, for altho it unites sparingly
wth. acids, yet part of it is still corroded by them & acts as an Alum.

Saline Earths

The chief & perhaps y^e. only one of these is Alum. This is a sub-
stance w^h. whose chemical history we are but lately acquainted. It
was formerly supposed y^t. y^e. vitriolic acid in Alum was joined to
a calcareous earth, & y^e. perhaps, as well as y^e. reasons before
given contributed to give rise to y^e. opinion of calcareous earths
being thought astringent (when joined wth. acids) But we now know
y^t. Clay is a compound earth, part of w^h. may be united wth. acids &
y^t. it is wth. y^e. part & y^e. vitriolic acid y^t. Alum is formed.
Alum is found native in a fine fibrous form called y^e. Alum: plumos:
This is so scarce y^t. as to be mistaken for Amianthus, w^h is often sub-
stituted for it in our shops. Alum is for y^e. most part extracted by
art from earths in w^h. nature has lodged it in pyrites, slates &c.

Extracted from Pyrites &c. it is called Alum rupeum. Alum is of 2 kinds The one is a pure transparent Alum, ys is dug in ye. northern climates. The 2d. is of ye. same nature wh. red streaks in it, called roman Alum, ys is brought from Civita Vecchia. I do not find ye. Chemists have determined in what ye. difference between these two consists. The Manufacturers especially Dyers find ye. ye. roman Alum is proper for some purposes, in wh. ye. english will not answer. Physicians also think ye. former better for medical intentions. As to taste it shew rather more styptiecity, but ye. is inconsiderable & I make no doubt ye. common Alum will answer equally well for med: purposes as ye. roman

Virtues of Alum

It has been found by experience ye. Alum is one of ye. most powerful astringents & perhaps also one of ye. safest. As it is readily soluble it acts quickly & is one of those astringents wh. extend their action over ye. whole System, & its effects appear much sooner than we could possibly suppose to happen in consequence of ye. circulation to ye. part affected. It acts more quickly & in a smaller dose than ye. Vegt: astringents, & is less deleterious, less stimulant & of more general use than ye. metallic. Alum is one of those astringents wh. we can employ most conveniently externally. It is often employed in inflamation of ye. Eyes. Alum not only contracts ye. fibres but diminishes also ye. mobility so of. it acts here in 2 ways: by correcting ye. laxity of ye. Vessels & at ye. same time diminishing ye. impetus of ye. fluids. The white of Eggs wh. wh. it is commonly joined for ye. purpose has been thought to have peculiar virtues but in my opinion it has no other in ye. case, than ye. of giving

consistence & contributing to more convenient exhibition. Alum is also used for bracing lax & flaccid gums in scorbutic habits, for wh. purpose ye. veg: Astringents have little effect, & ye. metallic on acc.t of ye. bad taste, strength &c are improper. Alum is employed w.th advantage in inflamations of ye. throat & anginas, where there is much laxity. Sydenham here formerly proposed ye. vitriolic acid in strong doses, but besides ye. too great strength of his doses ye. vitriolic acid mitigated by ye. earth in Alum answers much better.

Externally Alum has been employed w.th queens to dry up excessive excretions of ye. skin, as sweat in ye. armpits. But it is needless for me to repeat here what I said formerly about ye. danger we may incur by drying up excretions of this kind —

It is used internally as an astringent in hemorrhages. It is ye. substance we can depend most upon in Hemorrhagia uteri. For ye. purpose it is generally employed in ye. Pulv: Stypticus. The Sanguis Draconis w.th ~~was~~ this joined w.th it has been imagined an astringent, but to me it seems to have very little of ye. power as not soluble in our fluids, and I think an improvement is made in ye. last edition of ye. Phar: Pauperum when ye. Terra Japonica is substituted in ye. room of ye. San: Draconis. But by ye. we lose ye. original intention of Helvetius who added ye. Sanguis draconis in order to form ye. Alum into pills, as these are often required for more convenient exhibition. This is done by melting ye. Sanguis draconis on ye. fire & mixing a proper proportion of Alum w.th it; and this is ye. only means we can employ to reduce Alum into ye. form, & ye. only proper use of San: Draconis. Alum may be employed in all cases where astringents are used. It has been little used in Diarrhoea, but here it would not only act

as an astringent by bracing up ye. Intestines, but also as an antiseptic, especially if exhibited in small doses —

Alum is also employed in intermittent fevers & often not wt. out success. I have known it entirely prevent a paroxysm if given a short time before ye. fit was expected joined wt. aromatics eg. Rutney. Astringents have also been used in continued fevers, & in ye. case Alum is preferable to ye. metallic astringents —

Dose of Alum

It has been used in differt. doses for ye. diff. purposes for wh. it was employed. The highest dose is ℥ss, and given in this large dose it excites vomiting. It is therefore seldom prudent to give it in such a quantity & it will answer much better to give gr. x at a dose, repeating them every half or whole hour, and in ye. way a whole dram may be given wt. out its exciting vomiting, nay I have heard of Instances where even more than ℥j has been given. In hemorrhages, when astringents are used, wh. should be when they are very violent, our intention ought to be to moderate, but not to suppress ye. flux; so ye. in ye. case ye. smaller doses we use of an astringent medecine, the better.

Lapis hybernicus

This is a peculiar Slate. Most of ye. Slate kind contain Alum, wh. we know by their being deliquescent & mouldering in ye. air, wh. depends on their containing ye. matter of pyrites whence Alum may be got. Whenever ye. Slate has any of ye. aluminous taste we may employ it as a Medecine, but Alum itself is much preferable as we can ascertain ye. dose, for in ye. case we must give ye. Lapis hyber. encumbered wt. a load of useless earth & therefore it is now proscribed

by neglected. The Virtues ascribed to it, scarce deserve our attention. It has been said to have been used w.th Success in contusions w.th internal hæmorrhagy. Here indeed it may act as well as Alum, but Alum is certainly better in y.e first, and in resolving contusions neither y.e one or y.e other or any other medicine commended by Writers on y.e Mat. Med: is fit for y.e purpose.

Metallic Astringents

Copper.

This is a metal soluble in our fluids & in any saline substance. It may be combined by chemistry w.th acids, alkalis & neutrals. The combinations are all of y.e same Virtues. If there is any difference y.e combination w.th y.e muriatic acid is more astringent & w.th alkalis in general more stimulant than w.th acids.

Virtues. 1. It is a powerful stimulant very immediately, & exciting vomiting in small doses, insomuch as to make it difficult to exhibit it w.thout y.e effect. Here then we have great reason to be anxious in y.e choice of y.e preparation. We should mostly avoid y.e combinations w.th acids, universally w.th alkalis & prefer y.e neutral neutral salts. In y.e Intestines copper acts as a purgative & may be used w.th great advantage in hydropic Cases, not only on y.e acc.t but also on y.e diuretic qualities it possess if properly managed. Whether Copper exerts y.e diuretic quality in y.e present vie or by being assumed into y.e mass of blood, I shall not presume to determine. Copper acts also as an astringent in stopping evacuations, but we can seldom throw it in w.thout its stimulating effects. For y.e purpose Ens Veneris was recommended by Boyle, but afterwards neglected. There has been a dispute amongst Chemists whether Dr. Boyles Ens Veneris was procured from Iron or Copper. Boyle himself tells us

by Aretaeus, Weisman

℔ As this is a remedy little used in this Country, & wd. wd. many of you are perhaps unacquainted, ~~but~~ y. Epilepsy is not only often met wd., but one of y. most subborn & terrible chronic diseases y. y. human frame is subject to, I shall here give you y. history & cure of an Epilepsy as I took it down when I attended y. clinical lectures at Edinburgh. This will instruct you in y. manner of operation & dose of y. medicine

y. he used a pure venereal Vitriol, & this besides impossible to imitate y. properties of y. ens Veneris by any preparation of Iron. This ppation is to be considered as a combination of Copper w. an ammoniacal salt & sometimes w. a portion of muriatic acid. This pption may be obtained in Crystalls in y. following manner viz: by adding gradually to a Solution of blue Vitriol in ∇ a Sol: alkali till no longer any Cloud appear in y. Water addition, after w. to y. dis Sphonous Liquor pouring on as much alcohol as is suffic: to seperate y. ∇, when very small elegant Sapphire coloured crystalls will concrete. vid: Act: nov: N. cur: tom: 1. Obs: 67. This pption has all y. advantages of y. other pption of Boyles & never has any of y. Copper united w. y. muriatic acid. Wherever Copper is introduced in y. form it acts an astrigent & destroys y. mobility of y. nervous power & so is very useful in y. disease of universal Laxity, y. Rickets as Boyle observes. It is also antispasmodic & has been prescribed in y. epilepsy, as I have myself observed w. good effects in this disease; its action in y. case seems to depend on giving a tension to y. system & destroying y. irritability on w. epilepsies seem to depend. Boyle also recommends Ens Veneris as an anodyne, & says it acts w'out y. inflamable qualities of opium, & y. restlessness w. it often produces. Experience however does not seem to confirm this. Boyle recommends Copper in petechial fevers w. subsultus tendinum &c. & he found y. it stopt them & brought y. fever to a happy Issue. Van Swieten tells us of a pption of Copper w. imediately after it was taken produced a formicatio over y. whole body w'out any of y. bad effects w. occur from y. stimulating power of Copper & y. it is an efficacious medicine in y. Epilepsy. But y. method of pption was kept a secret

The common blue of Vitriol is of late employed in ye. cure of Intermittents, & is. great success, given from 1/6 gr. to a grain & more according as ye. stomach can bear it. The Copper is pretty used in Germany for preventing a Hydrophobia from ye. Bite of a mad dog. An experienced Physician of in Copenhagen informed me ye. upon he knew several people who used it, ye. assured him they had been bit by Dogs ye. were mad, & ~~were~~ & ~~known~~ no bad effects followed it. They used it in its metallic state. This is also confirm'd by Cothenius, ye. President of ye. College of Physicians at Berlin; who orders ye. filings of Copper in these Cases at 7/8 gr. dose & relates several Instances of the good effects of ye. medicine in these cases —

Out of ye. body Copper kills Worms, but for its stimulating powers it is very difficult to exhibit it internally for ye. purpose. A single drop of it dissolved in a solution of vol: alkali was found to vomit a Child to whom it was exhibited. Of this we shall talk afterwards under ye. head of Anthelmintics —

In external use, as a stimulant it acts as an escharotic & stimulating ye. Vessels brings on ye. degree of inflamation wch. favours good pus. The Ancients employed Copper very commonly in ye. intention as a dijective in ulcers, but on ye. restoration of learning, mercury being found out was almost only employed for ye. Purpose & has continued so to ye. day. But there are certainly a variety of Cases where Copper is more proper than Hg & perhaps still other cases of Ulcers where another Metal will answer better than either. I shall here mention one particular instance of a Disease not known in ye. books of Physick where ye. effects of Copper were remarkable, & wch. I give you as I had it from ye. ingenious Dr. Cullen of Edin: His Relation is: A Disorder appeared in ye. Country [Scotland] a good many years ago wch. exulcerations of ye. mouth & fauces, wch. ulcers in ye. tongue, about ye. Anus & in diff: parts of ye. body resembling in some respects ye. venereal disease, but distinguished from it by ye. diff: sloughs of ye. ulcers, their pimpled appearance, its want of infection from carnal comunication &c. Mercury was tried in this disease, but w̄out success, & Copper seldom failed of effecting a Cure. I used a solution of verdigreace, wch. applied to ye. tongue very easily cured ye. Ulcers there, by inducing a good suppuration, but as it was applied wch. more difficulty to ye. tonsils, it was also less quick in procuring their cure — This then ought to prompt all

Surgeons never to dismiss a difficult ulcer, w^out trying ye remedy.

Dose of Copper

This cannot be ascertained properly, as some persons will vomit for an exceeding small quantity. We can therefore only say y^t. y^e. doses must be small & this when used as an anthelmintic still smaller.

Iron

This is a metallic substance w^h. is of more freq^t. use than any other. It combines w^h. most saline substances & is dissolved by all y^e. acids. The Vegt. acid however only corrodes it, but attracts all y^e. med: Virtues. Iron then may be given in substance as its medical Virtue may be extracted by y^e. acid in y^e. ventricle. But y^e. is always an uncertain method, as y^e. dose extracted always depends on y^e. quantity of acid in y^e. ventricle, & as sometimes so much must be given as by its mechanical action to be productive of bad effects. It is always then preferable to have y^e. combination made before we exhibit y^e. medicine. With regard to y^e. ppt^ions of Iron in books of Pharmacy no difference of Virtue has been discovered by any expts yet made. There may perhaps be some difference if Iron is combined w^h. alkali, but even here no expt has proved it. All y^e. ppt^ions of Iron then turn upon convenience or elegance. It is often wanted in a powder form. Lemery's method for y^e. purpose is y^e. best viz. Letting water about an Inch deep digest on y^e. iron filings, by w^h. means part of them will be converted into a fine black powder, & more if y^e. operation is continued. This may be separated by shaking y^e. Vessel when y^e. uncorroded filings will separate. Iron combined w^h. muriatic acid is y^e. foundation of y^e. Tinctures for y^e. Shops & quite very

purpose to wh. Iron may be applied. It is very convenient as dissolving in Alcohol & making a sort of dulcified Ole of O wh. gives ye. combination a very fine flavour. The dose however is here uncertain as a part of ye. Iron precipitates in keeping, but then ye. same inconvenience attends other solutions —

Virtues of Iron

Iron is purely astringent, wt. ye. stimulating qualities of Copper, or ye. deleterious ones of Lead. However neither is it so powerful an astringent as ye. one, nor so powerful an antispasmodic as ye. other. The aper. & astring. preparations are of ye. same Virtues, & differ only in degree. In all Cases of Laxity & debility & in obstructions & slowness proceeding from these Causes, Iron is universally employed, but other simple astringents would answer ye. same effect. Yet we ought to beware of a sudden attriction wh. may be attended wt. bad consequences, & therefore when we exhibit it in these cases, we should give it in small doses & trust to length of time for a Cure, & by this means we shall avoid those inconveniencies of wh. physicians often complain in preparations of Iron. Mineral Waters often produce cures wh. we attempt in vain to perform by ye. combinations or solutions of Iron in our shops, & yet these waters often contain nothing but Iron. This is manifestly owing to ye. weakness of ye. dose, in proof of wh. we find ye. ye. strongly impregnated Waters seldom answer so well, as those weak ones wh. we commonly reject. Iron may be employed as an Antispasmodic & then must be used in small doses. Hysteric cases are those in wh. it is commonly used & then bad effects sometimes attend its exhibition. There have been diff. reasons assigned for this. Cartheuser has given assigned one which is not ye. most improbable of them viz. That the

Iron is advantageously employed in a Chlorosis & y. suppression of y. Menses y. is often y. consequence of this. It is in general of service in weak relaxed Habits as in Dropsys, Cachexys &c.

Disease is often attended wth. obstructions in y^e. Viscera, wch. are confirmed aggravated by y^e. use of Iron; but y^e. if these are removed it proves a valuable cure. There is also a distinction wch. should be made betwe y^e. hysteric & hypochondriac disease, & it is of good consequence to observe y^e. in practice. The hypochondriac disease is often accompanied wth. a rigidity of y^e. Solids, is a disease of a peculiar habit & occurs more frequently in y^e. decline of Life; whereas ye hysteric disease is often attended wth. a laxity of y^e. Solids, is often incidental & is more purely spasmodic. In hysteric Cases then Iron may be employed wth. success, while it is hurtful in y^e. hypochondriac — Iron has also been employed in intermitt. fevers. Stahl & his followers always contended that a fever is an effort of nature to throw some morbid matter out of y^e. body, thought they ought seldom to be stopped & on y^e. acc^t. they have been very sparing of y^e. Bark in y^e. cure of Agues. But they used for y^e. purpose a very subtle Crocus of Iron obtained by melting antimony wth. Nitre. We shall afterwards find y^e. ~~when we come to speak of astringents~~, that y^e. Crocus Martis acts in y^e. same manner as other astringents & therefore similar to y^e. Bark & Iron, as an astring^t. is improper in inflammable Cases. There are some astringents employed in ~~inflammable Cases~~ cont. fevers, but Iron should be avoided as it increases y^e. inflamatory diathesis. This observations also holds good in some other cases where Iron is more commonly used viz: in Hæmorrhages e.g. in y^e. Hæmoptysis.

suppose y^e. is general hypo^ac

Iron is hurtful when there is a disposition to putrescency, for by absorbing ye. acid in ye Stomach it increases ye. Disposition. It ought not to be used in a pulmonical habit, as it increases ye. action of ye. heart, quickens ye. circulation & thus causes fever. For ye. same reasons it should be avoided in people ye. are subject to inflammable Diseases — We ought not to order when we suspect an Ulcer in ye. Lungs or in any of ye. Viscera.

This may sometimes depend on a laxity of ye. solids, but much oftner owes its rise to an increased impetus of ye. fluids. This case if not inflamatory, is very nearly akin to it, & ye. blood shows ye. same crust as in other inflamatory cases. Iron therefore ought in these cases be given wt. great caution, for Hæmoptoes are often ye. consequence of Phthisis or consumption of ye. Lungs. Iron in these cases may by its sudden astriction stop ye. flux; but then ye. inflamatory diathesis is continued & often a suppuration brought on. Even Alum & c are not very proper & bleeding & ye. antiphlogistic method is much preferable ✠

Doses of Iron

These are uncertain. Small doses ought always to be employed & if a strong astriction is necessary we ought rather to manage our Iron by giving it freqtly at proper Intervals, than by increasing any particular dose — The Virtues of green vitriol will be understood from what has been said of Iron itself

Hæmatites

This is one of ye. principal ores of Iron wh. may be extracted from it by ye. several acids & employed in all cases where Iron is useful, but as it is only Iron wh. is extracted & to wh. ye. Hæmatites owes its virtues, ye. substance may be rejected as superfluous. The same objection applies to ye. Rubrica Fabrilis, another Ore of Iron.

Lead

This is not used in medicine except when combined wt. other bodies. With oil its calces combine & form ye. common plaister wh. is ye. foundation of most of ye. rest. To ye. plaister lead gives no other property but ye. of consistence. Lead unites wt. ye. sever

ral acids. For medical uses ye vegetable is comonly used & acts on it as well as ye others. The preparations of lead to ye acid in common use are ye vacch: Saturni, Acet: Lythargirii & common Cerussa or Whitelead. Externally lead is used as an astringent. It diminishes ye mobility more than Alum e.g. in sore Eyes. But let it be observed here ye Lead absolutely destroys ye mobility of our fibres. Lead has been used in ye Erisypelas, but in general astringents are improper in this case & great caution is to be enjoined in ye use of lead as it often renders ye anc. fibres paralytic; & there are Instances of Lead producing a Gangrene instead of curing ye Erisypelas

In burns it is often ~~used~~ employed in ye Ung.t album, but if long used it induces flaccidity of ye part & makes ye Ulcers difficult to heal. Mercury & Lead combined form ye Trochisci e Minio; several diff.t combinations of ye kind may be formed, & there are instances of scrophulous ulcers having been cured where other means have failed. But a caution ought to be observed here viz. ye if ye scrophulous ulcers are very numerous & ye lead be used too freely its exhibition may be attended to bad effects. Internally lead is a powerful astringent & is employed in Hæmorrhagies. We must however always beware of its deleterious effects. Every body knows its bad consequences to ye Miners & ye custom to some Vintners had of mixing lead to ye wine in order to obviate its acidity, to indeed it did powerfully showed sufficiently its bad effects. In hæmorrhages its action is on ye nervous power, for it is never given in such quantity as to stop ye hæmorrhage by corrugating ye fibres or coagulating ye mass of blood. Its effects being of ye kind have made it to be employed in Diarrhoea & Dysenteria, in ye Fluor albus & in Gonorrhoea.

In all these cases its effects are powerful, so y^t. I could wish to be able to inculcate its use. For a few doses, if we have great occasion for it, it may sometimes be used wth out bad effects but if its use is continued for any length of time, its bad consequences will certainly appear.

Saccharum Saturni & R. antiphthirica into w^h. y^t. certainly ent-ters have been employed in continual fevers w^h. remarkable success, not having such a stimulus as y^e. copper & taking off y^e. nervous symptoms, y^e. delirium, subsultus tendinum &c. as may be seen in y^e. act: Nat: cur: I have no manner of doubt of its efficacy in y^e. respect as an astringent & consequently as an antispasmodic; but as its effects in any large quantity are so pernicious, we should, notwithstanding y^e. encomiums several german physicians have bestowed upon it, always be very cautious how we use a remedy w^h. may be attended w^h. such dreadful consequences.

ZINC

This is a substance very little known in medicine. Its effects are certainly not merely astringent. Flowers of Zinc have been said by some to have been employed, but not by any authors of Note.

As to Lapis calaminaris w^h. has been supposed y^e. Ore of Zinc & Tutty w^h. has been supposed y^e. flowers of Zinc, y^e. Cadmia Fornacum, w^h. however Neuman raises very great doubt about, they are inert substances, for being boiled w^h. V they give no impregnation & w^h. acids have no Virtues. In our ointments they are of no effect except as joined w^h. Vitriol & other sub-

stances. The Lapis calaminaris in Turners Cerate, serves no other purpose but taking off ye unctuosity wch. in itself is hurtful. But for ye purpose any other subtile powder would have ye same effect

White Vitriol is a Combination of Vitriolic acid & Zinc but has always some Copper or Iron along wth. it. It is used in sore Eyes. If it contains Zinc we should be very cautious in its internal exhibition. It has been ~~used~~ given as a Vomit & said to have a very sudden operation, but I have never been able to observe this, & certainly its use in any considerable quantity must be attended wth. very bad consequences —

Vegetable Astringents.

We now proceed to these for ye anl. kingdom scarcely furnishes any astringents, except ye anl. Earth, commonly call'd calcined Hartshorn be reckoned as such —

With regard to Veg. astringents they are of less sudden operation than those of ye fossile kingdom —

I imagine veg. astringents as well as all others act in ye primi Via, but ye stimulus of ye metallic Stimuli makes ye effect much more propagated over ye System, than those of Veg. When applied to ye Tongue, ye Veg. astringents give a much weaker impression & there is no physician who will have recourse to them for stopping any hæmorrhages upon any exigency. They may indeed exert ye power over ye system, but then they do so only slowly & gradually. Vegetable astringents when they are required to be efficacious should be exhibited in substance. This has been little attended to. The reason for ye method of exhibition is, because we have no powerful menstruums for their solution. We have indeed V &

Alcohol, but ye. former will not dissolve an Ounce of any astringt. co. out repeated affusions & decoctions, & co. ye. latter a very great quantity of ye. ~~mat.~~ menstruum is requisite, & after all ye. Impregnation is Inconsiderable in either Case. There is another reason why we do not chuse these solutions, wch. is, yt. ye. means for solution have an effect upon ye. medicine, for much heat & long boiling actually destroy ye. ~~effect of~~ astringent quality & vegt. texture. Water too altho it washes but ye. astringent quality when boiling & seemingly suspends it, yet upon cooling it deposits much of what it had taken up. Upon these accts. therefore Vegt. astringents, should if possible, be given in substance. Another reason, not commonly given, why ye. Vegt. astringents are weaker than ye. fossile & why they should be always administered in substance, is ye. the Vegt. astringents may have their texture destroyed in our Stomachs from ye. fermentation going on there, whereas ye. fossile astringents are most liable to ye. effect & can only be hurt by Mixture. The late Dr. Alston, Professor of Mat. Med. at Ed. has a curious observation relating to ye. perus. bark, co. he says ye. when given in substance it remains in ye. stomach for a long time in its solid form, & there is great reason to believe ye. all vegt. astringents act in ye. same manner. Dr. Cullen says ye. he has seen ye. perus. bark thrown up unchanged after it had remained in ye. stomach for 8 days. Hence if we throw in this or other astringents in a fluid form we may often be disappointed in our expectations of success, not only because they are liable to pass off quickly by ye. emunctories, but because they are then

also more subject to ye. fermentative process. This also affords us an additional reason for ye. quick operation of ye. fossile astringents, viz. because they are more quickly dissolved than ye. vegetable. But wherever there is danger from a sudden astriction & wherever a slow operation is required the Veg: astringents should be preferred & used universally in all such cases. Veg: Astringents are recomended in hemorrhoidal swellings & bloodings, but it is extremely doubtful how far they are proper. Wherever hemorrhoides are ye. consequence of plethora, in wh. case nature attempts a discharge, we must be very sparing in ye. use of astringents. But this is not always ye. case, for they are often in consequence of ~~a habit induced by costive habit of body~~ an habitual costiveness, when ye. ~~blood is hindered~~ free circulation of ye. blood is impeded & it is pound out into ye. cellular substance & ye. echymoses kept up there on account of laxity, ~~for~~ & it is not owing to a varicose distension of ye. veins as some have imagined, as ye. contrary is proved by inspection. In this case then, where ye. swelling is kept up from laxity, Veg: astringents may be of considerable service. But sometimes, altho these evacuations are not natural, yet they are become habitual & when suddenly suppressed or stopt may bring on equally bad effects as if they were critical, so ye. fossile astringents are not to be used on acc.t of their being apt to induce a sudden astriction. Veg: astringents then are preferable because they operate slowly & gradually on ye. constitution, but even these, from a long continued use are liable to bring on costiveness wh. is absolutely inconsistent

Agrimonia, Agrimony; Alchemilla, Ladies Mantle, Argentina, Silverweed or wild Tansey, Fragaria, Strawberry bush, Rosa, Rosebush, Tormentilla, Tormentil or Septfoil, Pentaphyllum, Cinquefoil; Rubus, The blackberry bush

to. hæmorrhoidal fluxes. In ye. exhibition then of these astringents we should always take care to obviate ye. costiveness to. they are so apt to produce.

Having said thus much of ye. astringents, I now proceed to treat of particulars, where indeed we shall not have much to say upon each. If you look into ye. Writers on ye. Mat. med. you will find under each particular astringent an enumeration of its virtues, in which they tell you ye. it is good for spitting of blood, diarrhœa, dysentery, fluor albus & every other fancied excessive secretion in order to swell their volumes. They do not always however put all of these under each particular simple, but distribute their diseases to peculiar ones, & recommend this in ye. Dysentery, fluor albus &c. All this however is not always merely for ostentation, for it has sometimes happened ye. one being accidentally prescribed in a particular case, was afterward always used for ye. same, altho another might have answered equally well. You are not then to expect ye. I am to follow these writers in ye. method of procedure. I shall only mention where a particular astringent is accompanied to. some other peculiar property to. modify its operation.

I shall throw ye. substances into distinct fasciculi, and place them in such an order as corresponds to. their virtues.

The to. belong to ye. same natural order ~~of an~~ is by Linnæus called ye. Sentiosæ. This nat. order is better established than many of ye. others. They are all agree in quality, but some of them are not used in medicine. I have only mentioned such as are set down in our Dispensatories. And if these ye. I have mentioned should not occur in any particular place of ye. World, or we should by some accidt. not be able to furnish ourselves

w.th them, we may safely substitute any other of y.e same natural order. With regard to this order, as all y.e genera agree, so do each of y.e species in Virtues so y.t besides y.e officinal species, we may take any one species of the genera for y.e same purpose. From this we may judge of y.e extensive use of distributing plants into nat. orders, if care is taken y.t these are built on a sure foundation & made w.th suffic.t accuracy. It has been common for Mat. Med. Writers to introduce y.e variety of Names and our each particular substance on y.e acc.t I think it is much better to refer you to y.e late authors especially to Linnaeus's Mat. Med.; where you will find his own Name, Caspar Bauhins Name &c.o & references to all y.e Authors y.t have given an acc.t of y.e particular substance. As to y.e 8 plants just mentioned, they are all of y.e same Virtues, w.ch are shortly summed up in y.e astringency. They may differ in degree; but y.e difference is not ascertained: they hardly differ in quality. Some of them have some other qualities annexed to y.e astringency. e.g. Argentina root has a sweet w.th its astringency. Fragaria has more bitterness than any of y.e others; in Tormentilla Nanophillata we perceive some Aroma. We get but little assistance in y.e sensible qualities from any author except Dr. Jno Hoyer; Lewis has copied him very inaccurately, & when he advances any thing of his own it is generally imperfect.

With regard to these plants as they stand in our shops, y.e first 5 stand in y.e Ed. & not in y.e Lond. dispensatory. But neither are they inserted in y.e former for any particular Virtue; but only from a timidity of rejecting too many substances thinking it better, as it is expressed in some former editions of y.e Dispensatory,

copia quam penaria foremi; nor have ye London College ~~exp~~ banged them from any noxious quality, but only because they are not used in present practice, wch. ~~[illegible]~~ by ye by is far from being a test of ye. efficacy of med. however it is certain ye. ye 3 wd. ye. Lond College has retained are certainly ye most powerful, for we use only ye. barks of those, whereas ye astringency resides most in ye barks. The Lond College still retain ye. rose on acct. of its fragrancy, but Tormentilla & Cinqfoil are certainly ye most powerful of those I have mentioned, wch. is confirmed by experience as well as their sensible qualities. The astringency is more pure & entire in ye roots, & ye leaves are furnished wd. a mucilaginous quality. — The Cinqfoil & Tormentilla are both remarkable astringents, and have ye common Virtues of this ~~ord~~ class of med. The first has been used by Hippocrates & some later physicians in ye cure of Intermittents fevers. Many other common astringents have been used for ye same purpose. The Cinqfoil or pentaphyllum has a bitterness wd. its astringency, wch. is perhaps necessary in ye cure of Intermittents, as ye bark possess it in so eminent a degree. The Germans use ye Tormentilla for ye same purpose; but they join it wd. Gentian & other bitters, & they assert ye they answer equally well wd. ye Bark in ye Cure of their diseases. — Tormentilla & other astringents have also been spoke of for ye alexipharmac Virtues in pestilential disorders, ye. is in putrid continual fevers, where it is said to have been applied wd. success. In Germany ye Tormentil &c has been used in ye Small Pox, so ye we may hence conclude ye other astringents besides ye bark may be useful in fevers & bring on a suppuration

The Tormentilla is one of ye strongest of ye astringents, & in some places of Italy it is ~~made~~ used for tanning of leather. Before ye Bark was introduced, these astringents were chiefly used in intermittent & other kinds of fevers, even from ye times of Hippocrates; & ye Indians of ye Continent use ye Geum for ye same purpose wch is a plant of ye same natural order & corresponds entirely in virtues wth ye Tormentil & Cinquefoil.

℞ Galium luteum, Ladies bedstraw, ~~Asperula odorata~~ Aparine, Goosegrass, Rubia Madder.

The Galium luteum or Ladies bedstraw is greatly commended by Sufficien for ye Hysterics —

The Virtues of Tormentil & Cinquefoil may be extracted by Water & Alcohol but only a slight Impregnation is obtained from either; & if they are boiled much in Water, it deprives them in a great measure of their astringency

Dose.

These substances have ~~commonly~~ in general been prescribed in too small doses, by ye Writers on ye Mat: Medi: The Medical Virtues of ye roots are almost entirely lodged in ye cortical part, so ye when ye roots are so large as to admit that ye pith may be thrown away, ye dose need not be so large as when we employ ye whole root. When they are prepared in ye manner they may be given in a dose of ℥ss to ℥j & where a more sudden astriction is wanted we repeat ye dose as often as to give ℥j in 24 hours, in ye same manner as in ye use of ye Bark

The next set of Astringents are ye Stellatae of Linnaeus, & this is 4th order. It is but a small order wen ~~among~~ to ye Botanists

These 3 are retained in ye ed: Dist. The London College retain only ye Rubia. They all possess ye astring: quality in so weak a degree, ye we may very well do without them. They are constantly ~~most~~ set down as diuretics by Mat: Medi: Writers. We should reject this as imaginary, if it were not so constantly repeated & indeed by authors of some credit; so ye we should pay some attention to ye quality. The same property has been attributed to other astringents, but I am unable to account for it, or give ye rationale of it

It ~~has been lately~~ is not long since it was observed ye Rubia colours ye bones of ye animals ye feed upon it; & it was also long since observed to have ye power of colouring ye urine, & it appears also by some experts. of

Dr. Young ye. it colours ye. milk. This shows ye. veg: substances penetrate farther unchanged into ye. System than has been imagined. It seems to contradict what I have been saying of vegetables undergoing a change in ye. Jovina via & having ye. peculiar qualities destroyed. Here we see ye. colouring substance of ye. Rubia carried through ye. Circulation & deposited in ye. excretions, but I shall not affect how far ye. retention of colour implies a retention of virtue. The colouring matter often needs in a very small portion & diffusion of substances often prevents ye. operation; so ye. ye. reunitting of ye. colouring substance in ye. excretions, is no proof of its being in such quantity in ye. blood as to produce any considerable effect. Madder is found to change ye. health of ye. Ind. ye. takes it, making it insipid, sluggish &c. Hence we see ye. it certainly does exert a power in ye. system, & whatever hurts ye. system may be employed as a medicine; but in regard to ye. Rubia, it cannot be used, as it requires such a large quantity & its dose must be very uncertain. Rubia has been recommended in ye. Jaundice but it may safely be rejected w. many other med. ye. have been recommended for ye. same purpose, & there is no tribe of med. ye. are of less consequence than those recommended & held as specifics in ye. cure of ye. Jaundice. For we are now well assured ye. ye. Disease oftener depends on calculi in ye. biliary ducts than on any other cause, & can therefore only be cured by solution or evacuation, & as very few med. can produce this effect, we cannot suppose ye. rubia of any service in ye. cure of ye. disease. The cure of ye. Jaundice

Shultz, Professor of Medecine at Halle, says ye. he has ~~approved~~ prescribed a decoction of Madder for ye. Gutta Rosacea, or red Pimples in ye. face, to be taken internally, & found it an effectual remedy.

Rhaponticum Monkshubarb, Rhabarbarum Rhubarb Bistorta
Bistort or snakewood Brittanica American Dock Rumex Lapathum, Dock

is almost always sudden from y. stone being evacuated, & hence it is y. many med. have been supposed to cure y. jaundice from y. being luckily given when y. effect happened. The cure then of y. Disease must depend on solution or evacuation. For y. former we have hitherto discovered no remedies; for y. latter y. Rubia can have little effect & it must be attempted by emollients, emetics &c.

The next order in. we are to treat of are y. Vaginales — Under y. ~~tem~~ order are comprehended:

This set of plants differ remarkably from one another as some of them have an adventitious quality peculiar to themselves, many contain an acid in. y. astringency & in y. set of plants we have y. gradations of acid, austere & acerb. The astringency is chiefly lodged in y. roots, y. more pure acidity in y. leaves. In y. roots there is also pretty more or less of a purgative quality, this is most remarkable in y. Rheum, tho y. Lapathe or Dock kind also partake of it in some degree. Their astringency however is often so great as to overpower y. effect; but still y. does not deny y. truth of y. assertion, &c. I know from experience y. Monks Rhubarb given in large doses will have this effect. The Bistorta contains a more simple & pure astringency than any other of y. order of plants, & is therefore generally prescribed before any of y. rest for y. Virtue. Astringents have pretty of use in y. Scurvy. The Vaginales are y. most prettily employed for y. purpose, tho there are at y. same time instances of y. others being successfully used in y. Intention, in. proves y. this Virtue is not peculiar to them as astringents. Their

Radix Brittanica. Doct. Martinguis wrote a treatise on ye. Virtues of ye. plant, wch. he says saved ye. entire Army of ye. Emperor from being destroyed by ye. Scurvy, during their encampment in Holland, where ye. disease is frequent. It was on ye. account made use of in ye. Cavity of Gums, wch. generally accompanies ye. disease. Doctor Colden, Lieut. Governor of New York, commended it much in ye. cure of Ulcers, & says ye. Indians use it for ye. purpose. He relates a Case of a person who had a most obstinate Ulcer in his Throat, wch. ye. regular Physicians could not cure, but ye. Indians cured it in a short time wch. a decoction of ye. plant, given internally & used as a Gargle at ye. same time. It has since also been found of excellent service in cacoethic ulcers of ye. Legs & other parts of ye. body, given both internally & externally.

acidity may however contribute to their effect, for that is found most appropriated for ye. Scurvy whether it be in a pure separate state or combined wth. some other substance & producing acerbity. But we should observe here yt. ye. vague & undetermined notion of ye. Scurvy has occasioned confusion in ye. Mat: med: For ye. term has been transferred to many cutaneous diseases wch. are of a very diffnt. nature & wch. whose ~~[illegible]~~ we are not so well acquainted. We shall confine ye. term entirely to ye. ye. disease wch. is by Authors called ye. Sea Scurvy. The Itch has been called one of ye. scorbutic disorders & astringents have accordingly been applied for ye. cure of it, as ye. Oxylapathum in ~~our~~ Ungt. antipsoricum of ye. Edi: Disp: but it is found ag. on repeated trials no such virtue has been discovered. Astringents are in general improper in all those cutaneous erupt: tions wch. are in ye. least degree critical or an effort of nature to throw ye. offending cause out of ye. body on ~~to~~ ye surface

Pharmaceutical treatment of ye. Vagina.

All these astringents may be employed in substance, but there are also some among them wch. are wth. greater propriety given in solution. Water in decoction extracts ye. Virtues, & Spt. has little effect. We shall hereafter have occasion to speak of of Rhubarb & ye. proper treatment of it

Filices. Ferns.

These are ye. 6th. numb: of Linnaeus ord: natural: ~~Tribe~~ There are but few retained in our Dispensatories now, in comparison to what there were formerly inserted. Their sensible qualities are difficultly investigated & described. Floyer has distinguished a taste peculiar to ye. order, wch. he calls ye. ferny Taste, by wch. he ~~[illegible]~~ means

more or less of sweetness joined w.th astringency. If it be true, as it is alledged by some, y.t y.e sweetness is so great y.t y.e roots have been employed in times of scarcity as food, we cannot suppose them very efficacious as meds. But tho some of these may be sweet, yet many are too astringent to be nutritive, & some have a sensible acrimony. Polypody, one of these, is on acct. of its acrimony transferred to y.e head of purgatives, & as this quality is very sensible in one, we should always have it in our head y.t it may be in y.e others. It is said, & in some measure vouched, y.t y.e roots of some of these plants have been useful in destroying worms. At first view this would seem to be owing to their acrimony, but we know y.t simple sweets, as Wort eg. have been efficaciously employed for y.e same purpose. From their astringency they strengthen y.e tone of y.e Guts, so y.t it is doubtful whether ferns act as anthelmintics from y.e sweetness, acrimony or astringency. The ferns seem to me chiefly to be considered as astring.ts & w.h in general they have had all y.e virtues ascribed to them, as curing rickets, scurvy, spasmodic complaints &c. All these effects are intelligible & may be explained from y.e astringency. Some others are ascribed to y.e Filices or capillary plants, w.h I cannot understand eg. their pectoral virtue. Thus y.e Adianthus has been constantly reckoned. However tho I cannot account for y.e virtue, yet it would be presuming too much were we to reject every thing we cannot account for & what has been constantly affirmed by others. We may w.h more safety reject y.e Hepatic &

& splenetic Virtues. It is at all times difficult to explain how Med.s act on y.e Viscera & a specifick Virtue is perfectly unintelligible. If y.e Liver or spleen are spasmodically affected, y.e ferns as antispasmodics, may be useful, but it is a mere Chimera y.t they can take down y.e Spleen or make it disappear altogether. Other astringents have been employed in checking catarrhs & ~~then~~ indeed there is one case, viz. I shall mention afterwards when astringents are y.e only efficacious med.s A third effect ascribed to y.e ferns & many other astringents is y.e of acting on y.e urinary passages as nephritic diuretics, Lithontryptics &c. If it is enough here to mention y.t I shall afterwards consider y.e subject fully & show y.e foundations of these opinions.

Muscus Lichen.

This is not in our present dispensatories, tho it formerly entered all of them. The term is ambiguous. If we take it in y.e botanical sense as comprehending all y.e Mosses, it will not apply, as many of these have a strong acrimony &c ~~tho~~ I employ y.e term Mucus here for y.e several species of what are called Lichenes viz. are plainly astringent & recomended in diseases of y.e breast. I take notice of them chiefly on acc.t of y.e Cup Moss or Lichen pyxidatus viz. Willis, a man so much employed in practice, but at present too much neglected on acc.t of his exploded theories, takes particular notice. He candidly owns y.

ye. Chincough is a disease in wch. Physicians seldom, but old Women often succeed. The cuprum is ye. chief of ye. empiric remedies, & I have myself known it used wch. success. The Bark has been recomended in ye. disease by Dr. Burton, & there are instances of its good effects in ye. case; but it is generally very difficult to make a child swallow ye. proper quantity of Bark, & it would be much easier to exhibit ye. simple astringents, where there is no bitterness, as in ye Cuprum.

Acid Austere or Acerb

We have now finished ye. Astringents yt. could be ranged in a botanical order. I shall in ye. next place discuss them according to ye. relation they bear to one another in yr. sensible qualities. The number of ye. acid austere Astringents is very great if we take in all unripe fruits; but I shall here only mention such as have this quality in ye. ripe state. I shall only observe that they all agree in virtues & differ only in degree. The one most easily procured, wch. should always induce us to give it a preference, especially as I imagine it is at ye. same time one of ye. strongest is ye. Prunus sylvestris or common Sloe. We should always prefer indigenous plants to exotic, as we may then be assured they are genuine, wch. is far from being ye. case wth. foreign productions. In ye. ed: disp. an extract is ordered to be made of this, in ye. London a Conserve. As it is a substance yt. acts more in ye. primæ viæ than in remote places, its acerbity will make it perhaps more preferable to many others in ye. Dysentery. A Diarrhœa may be occasioned by eating too large a quantity of ripe fruits; this may be obviated by taking a proper proportion of acerb fruits, but such as have no sweetness joined to ye. acerbity, as ye. would render them liable to undergo a fermentation. It is on this acct. therefore ye. Conserve is certainly a wrong method to give

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this medicine, as 3 parts of sugar are added to one of Aloes, wch. certainly will in a great measure destroy ye. virtue of ye. medicine. For let ye. wder: method wt out inconvenience, for by long boiling, ye. astringency is apt to be destroyed, & if the extract be made of a proper consistence, it is rendred of very difficult solubility. In my opinion a medium ought to be observed. And ye. Medicine should be prepared in ye. same manner as ye. rob of Elder. ie. boyl it to a certain consistence & then add a small proportion of sugar to keep it dissolvible. This method of treatement will apply to many other substances; yt. are generally prepared in a diff. manner.

I am next to take notice of such remedies as have universally been reckoned Astringents; but have no affinity either in botanical clasification, or great resemblance in taste or smell, by wch. they may be reduced under certain orders. I have before observed yt. astringency is almost universally present in ye. solid parts of veg. & I might therefore enumerate a large number of veg: astringents; but I am only to mention such here as possess this quality in purity, & are free from any other qualities yt. ~~should~~ might prevent us from employing them as astringents.

Anchusa, Alkanet

This belongs to ye. Asperifolia of Linnaeus. The whole of ye. order possess a certain degree of astringency, but it is only weak & combined wth. a mucilage, for wch. reason they have also been considered as demulcents.

Balaustia, Balaustines.

These are ye. flowers of ye. pomegranate. These are very pure & simple astringents, tho none of ye. strongest. Water they give out a most elegant tincture, & in greater perfection ye. ye. wood of ye. tree. It yields best to a watery menstruum & hardly at all to a spirituous; ye. decoction therefore is ye. best preparation of it.

Brunella.

Brunella. Selfheal

There is a very weak astringent tho recomended by many writers. But if we are to judge from ye taste & ye class of plants to wch it belongs viz. ye Verticillata, most of wch are aromatic & stimulating, we cannot expect any great astringent virtues from it.

Hypericum. St. John's wort.

This plant was formerly held in very great estimation, but is at present almost neglected. If we are to judge from its sensible qualities, it appears to be an active medicine; for, I think we should always investigate ye virtues of any substance wch has some peculiarity in taste, odour &c. From its taste it appears to be astringent joined wch a bitter, wch is often combined wch astringency. Besides these sensible qualities it manifestly contains a large proportion of a subtile essential oil. If we hold it to ye light it appears to be full of small holes whence it is called Hyp: perforatum. These however are cells in wch this subtile essential oil is lodged. All these afford strong presumptions of its utility, & there are also many well vouched testimonys of its virtues, particularly of its diuretic powers. This virtue is said to depend on ye terebinthinate oil it contains; but ye powder & decoction are found to be equally diuretic, & in both these cases a considerable proportion of ye oil must be evaporated, so ye it would seem as if it depended rather on its astringency. The method to extract this subtile essential oil, upon wch perhaps its chief virtues depend, is to pour Alcohol on ye plant. Newman tells us ye by ye first affusion he obtained a pale red tincture; but ye second gave him a green tincture less impregnated than ye first. Hence then I would recomend extraction by one affusion of Alcohol, bringing ye to a proper strength by applying it to fresh parcels of ye plant. We may afterwards evaporate greatest part of ye alcohol by distillation & thus obtain a much stronger impregnation. The oil of Hypericum is much recomended in epilepsy & maniac cases; but I confess I cannot act for its virtues in these cases; but as there are testimonies to prove it does, it would be presumptuous to deny them. The seeds of St. John's Wort destroy worms.

Lythrum

I insert it here fm De Haehn's authority, who says it was communicated to him by a Physician of ye Army & ye he in conjunction w. Van Swieten had experienced its good effects in ten diff cases of dysentery. After ye exhibition of a purge he gave it in doses of a dram night & morning & says ye if ye disease be recent it will cure it in 3 days & old dysentery in 3 weeks, w. had resisted every other remedy. Astringents are seldom employed in Dysenteryes, & it commonly said they should not be given untill ye acrimony is evacuated. But I before told you that astringents were improper in Dysenteries untill ye deterioration & ye Intestines was taken off by other remedies. De Haehn tells us ye this Lythrum is chiefly of use in chronic Dysenteries & I think ye this & other astringents are very proper at this period, & we generally are too long before we order them. The stronger astringents are in these cases improper & we ought only to give such as will bring on an astriction by slow & mild degrees & of this kind is Lythrum.

Millefolium. Milfoil or Yarrow.

This is much used in Germany, where it is not only considered as an astringent, but also as a sedative & antispasmodic. It was greatly comended by Stahl & his followers; whose authority however is not always ye best, as they often give high encomiums to very insignificant remedies; but Hoffman has also recomended it. The herb seems to be a weak astringent w. acrimony. The flowers are remarkably acrid & contain a very acrid essential oil. It is doubtful, as ye part of ye plant is not specified, whether it is an antispasmodic from its astringency or essential oil. The powder of ye flowers has sometimes been used w. success in flatulent Cholics & from ye aroma they contain, it may be probably be serviceable in hysteric cases; but then it should perhaps rather be considered as an antispasmodic than astringent

Celsus says y. a Decoction of Plantane Leaves ~~on~~ is of service to consumptive people; & Schultz Professor of Medicine at Halle says y. he has frequently tried it in these cases & always found it to answer extremely well

Myrtus. Myrtle.

Both ye. Leaves & Berries have been used & by ye. sensible qualities they are evidently astringent; but we may wd. great propriety proscribe ye. use in medicine, as they are neither natives of ye. country nor of such peculiar virtues as should make us import them from foreign Countries.—

Plantago. Plantane

This plant has many virtues imputed to it; but we should imagine it to be of little efficacy if we judge from its sensible qualities. The late Dr Clerk of Edinburgh says ye. he had seen several hæmorrhages yield to ye medicine, wd. had ~~seemingly~~ resisted seemingly more efficacious meds. If we expect such effects from it, we must use it in large doses & continue it for a length of time. It has also been used in Hæmorrhages & Hæmoptoes but wout any manifest effects, & any yt. might appear, were perhaps rather owing to ye other remedies employed along wd. it, a low diet & repeated bleedings. The leaves & seeds of ye. plant are used. The seeds are of little service being a mild farinaceous substance, ye. leaves have somewhat of an astringency.

Polygonatum. Solomons Seal

In this & you have an Instance how necessary it is to pay a particular attention to ye. parts of ye. plant yt. should be used. The flowers, Berries & leaves of ye. Polygonatum are of a very acrid & even of a poysonous nature. The root is ye. only part wd. should be used. It is remarkably mucilaginous wt. little acrimony, wh. is of ye. same nature wh. ye. of ye. flowers, but this may be dissipated & destroyed by boiling. It is a mistake of those who reckon ye. whole plant to be an astringent, for ye. quality is confined to ye. root. The root has often been used wd. success in hæmorrhoidal swellings & bleedings. The dose is ℥ss boiled in ℔j of Milk untill ye. half is consumed, to be taken every evening, & this is an efficacious remedy

in removing ye pain & swelling. Several other remedies of ye astringent kind have been employed wth success in ye hemorrhoids. Whenever these evacuations are critical, astringents are improper; but they are not always critical. They are frequently accidental from hardned faeces pressing upon & causing a fulness of ye neighbouring vessels, & here certainly when we obviate ye costiveness ye habitual determination to ye part should be taken off gradually by ye proper & mild use of astringents. Some Authors allege ye ye hemorrhoids serve ye same purpose in men & are equally necessary & critical wth ye menstrua in women. But I know ye as many, nay many more women are affected wth ye hemorrhoids than men, & that ye same time have ye menses regular, wch shows ye hemorrhoids are often to be considered as a disease, & not as a critical determination. In ye disease we should employ only such astringents which have ye action confined to ye prima viae, & of this kind are ye vegetable; for if we employ those of a stronger kind, as Alum &c. we shall at ye same time run ye hazard ye ye action will extend over ye rest of ye system & suppress ye menses wth ye other necessary & nat evacuations.

Sanicula. Sanicle.

This is by Writers on ye M. M. constantly considered as an Astringent, but it belongs to ye Umbellatae, wch is a very acrid class of plants & even many of them poysonous; & we cannot therefore a priori expect any astringents from ye class of plants.

Sedum or Sempervivum. Houseleek or Sengreen

This is a Vegetable of moderate astringency & has been constantly considered as a Cooler. As it has no sensible acidity or saline poignancy, I can see no foundation for its cooling qualities. It has been recommended as a Cure for corns. Acrid substances have been very improperly applied

Boerhaave says y. ℥ss of y. Juice taken at once will often remove y. Dysentery. Boyle recommends y. Juice mixed w. Honey to be applied to y. tongue & fauces of Children y. have y. Aphtha or Thrush, & it does often give them considerable relief; & indeed in all inflammations of y. Throat & fauces it answers extremely well; as it is mild & bland & mucilaginous; cooling & acting as an emollient. The Poultice of y. leaves is often employed by y. common people in Burns, & w. good effects. In y. Phil. Trans. of Breslau y. juice of y. plant is recomended for films in y. eyes of children;

for ye purpose. This Semperviveum may be useful merely on acct. of its succulency, for I know no cure for Corns, but such as will obviate ye hardness of ye neighbouring parts & by softening them dispose ye corn to separate: this plant answers ye intention remarkably well if it be applied as a poultice. ✠

Viscus quercus Mistletoe.

This medicine has been in repute for numberless years, & some have been fond of it to superstition, & even a great deal of superstitious ceremonies were observed in its application; by wh. at length many came to doubt whether it possessed any medical virtues at all. It has been particularly famous for ye cure of ye epilepsy. When an epilepsy proceeds from an increased mobility, allowing ye spasmodic contractions to recur upon slight occasional causes, astringents are certainly useful, & in ye case, mistletoe may be used wh. success. It has a bitterness joined w. its astringency & Sr. John Floyer says, ye in some instances he saw it cure Quartans, where ye dose was considerable & continued for a length of time. This remedy gained great reputation in England where several treatises have been wrote on it, & Cartheuser also gives his testimony in support of its virtues. I make no doubt of its virtues; but not on Cartheusers authority, because in those cases where he used it, he employed several other remedies at ye same time. With regard to ye choice of ye plant, we now know ye we not be anxious upon what tree it grows, for its virtues are precisely ye same whether it grows on ye Oak, Apple, Hazle or any other tree. The whole of ye plant has been employed, but ye virtue resides in ye Bark, wh. should be used from ℥ss to ℥j, & if it is continued for some time, we shall find it to be an efficacious astringent

An Infusion of ye. Leaves is also commended in ye. Consumption. The Juice of ye. Plant has been paid to be of service in ye. Hemorr. & I think it is one of ye. safest med. ye. can be applied for ye. Purpose. Nettles are remarkable for ye. effect of burning & inflaming ye. parts of our body to wch. they are applied; & are often on ye. account made use of in a torpor & paralytic affections, or to excite ye. animal fibres to contraction. This effect is called Urticatio. If we examine ye. Plant carefully we find it is furnished wth. numberless points wch. contain a liquor; these on striking it against any body break & make a small puncture, into wch. they at ye. same time emit ye. liquid wch. occasions ye. inflamation

especially where a slight bitter is at ye same time required. It is best employed in substance, for it does not give out its virtues in solution.

Urtica. Nettle. From ye sensible qualities of ye Nettle, we should hardly allow it ye virtues ye are attributed to it. But ye testimonies in its favour are very strong & are ~~but~~ founded on experience. It is used by some in Diet, wh is a proof ye it is no very active medicine. If ye recent Juice is taken, or a handful of ye herb boiled in water to make a strong decoction, it often has ye immediate effect of taking off ye swelling of ye piles. It has been commended as a diuretic in ye same manner as other astringent plants. ✠

Uva Ursi.

This is a title wh has but seldom appeared in ye Mat. Med. & never in any officinal list. The practitioners at Vienna ascribe very extraordinary virtues to ye plant. It ~~never~~ is only within a few years ye it has been employed in Medicine, tho it has been formerly recommended as an astringent. The Physicians of Montpellier have in general terms hinted ye it was useful in calculous complaints. Vanswieten recommended it to Bachne to make trials wh it & he tells us, ye it has been found a certain cure in all cases of purulency & in ulcers of ye urinary passages. In calculous cases it enables ye patients to retain ye urine, & stopped ye strangury. It also changed ye appearance of ye urine in some of these cases; where it was bloody, alkaline & purulent, so strongly alkaline as to effervesce wh acids, it brought it back to its natural appearance & made it deposit a healthy sediment. In some cases indeed it often it failed, but these were such, & ye urinary passages were in such a probable state ye it was beyond ye power of Nature to have effected a cure & even lithotomy could not have brought any relief. When all ye symptoms attending ye Stone are removed, we are very apt to suspect ye Stone itself to be dissolved; but this did not appear so

e by ye Catheter ye stone was always discovered to be of ye same size & roughness as before. The plant was always used in substance. De Haan at first gave only ℥ss of ye powder once a day; but he tells us in his later works ye he now gives ye quantity 3 times a day. He makes no observation on ye operation of ye medicine, whether it bound ye belly, fretted ye stomach &c. neither does he mention ye remedies ye accompanied it. He only says ye opiates were given in ye beginning for to ease ye pain, & oily injections were thrown in, but ye latter soon both suppers & dels as unnecessary. In order to place ye efficacy of ye remedy beyond a doubt, Dehaehn further tells us ye some persons after ye symptoms were somewhat alleviated grew tired of ye remedy & desisted from taking it, but ye ye symptoms soon returned & were again relieved by ye patients returning to ye use of ye remedy, & ye their return of symptoms from laying aside ye remedy, & ye removal from resuming ye use of it happened to ye same persons 5 or 6 times. If we take all these circumstances together, & admit ye authority of two such celebrated Physicians as Vanswieten & Dehaehn, who acted under ye eyes of so many people, I think we can hardly doubt of ye facts. And tho we meet w. some difficulty in accounting for ye operation of ye medicine, & there are instances of ye remedy not succeeding sometimes, yet these should not forbear us from giving ye medicine a trial; especially as we can so readily procure it, for tho it does not grow about this place, yet I find ye it is one of ye natural productions of New England & ye other northern provinces of ye Continent! De Haehn has attempted to account for ye actions of ye remedy, but owns at last ye he was incapable to give ye rationale of it. I shall attempt to ~~assign ye reason of ye~~ explain its action, as it may ~~throw~~ perhaps show you ye it is possible for diuretics to be of service in calculous complaints, & excite you to

make exports w.th them. It is to be observed, y.t in y. Annals of Physick, there are many Instances recorded where Calculi have been carried in y. Bladder & Kidneys for a number of years w.out any inconveniences. Tho this be certain beyond a doubt, yet it is not easily accounted for. Some have imagined y.t y. smoothness of y. stone must have been y. reason; but there have stones been found as smooth as polished marble, y.t have given great pain & uneasiness, while on y. other hand rough stones gave none. There are Instances of relief being obtained from y. use of Lime water, while y. Catheter at y. same time showed y.t y. stone still remained in y. Bladder. Dr. Whytt in his treatise on Lime water imagines y.t y. Lime Water acts by dissolving y. Stone into a Mucus, or at least y. surface of it & by y.t means taking off y. asperities & rough edges. But I do not imagine y.t y. will be found to be y. case, & where y. Uva Ursi has been used, y. stones have been found equally rough as before, tho y. symptoms have been relieved; besides if y. Lime water acted in y. way just now alledged, y. dissolved mucus must be carried off by y. Urine & by y. continued action of y. Lime water y. stone would at length be entirely dissolved; but this has never been found to be y. case in stones of any considerable size. We must therefore endeavour to account for y. matter in a diff.t manner. I do not imagine y.t y. symptoms occasioned by y. presence of a stone, are so much owing to y. size or surface of y. stone itself, as to y. acrimony of y. urine w.ch always accompanies calculous concretions. It is only from this y.t we can explain y. effects of y. Uva Ursi in this disease; for y. medicine has very little effect on y. stone itself, & it is inconceivable how it could be of service in these complaints, unless it were by taking off this acrimony. It has been supposed y.t

It is prepared from ye unripe fruits of ye Areca palm tree, wch are cut into small slices & boiled for ten hours; a small quantity of quicklime is then added by wch it acquires ye reddish colour; after this ye juice is pressed out & ye faces are dried for use

a strangury arising from stones in y. Kidney is owing to y. consent or sympathy between y. urinary passages; but it is much more probable y. it is owing to y. acrimony of y. urine. It has been supposed a proof of y. efficacy of limewater in dissolving stones in y. body, y. it is found to have this effect on stones out of y. body but then y. alkaline urine should from y. same reason have y. same effect. The Uva Ursi seems to act by changing y. state of y. secretory organs, inducing a stricture & strength of y. parts, & it must be in this manner y. all y. Astringents act, in have ever been recommended for y. Cure of y. Stone & Gravel. Limewater itself seems rather to act as an astringent than a dissolvent, & appears to be analogous in its operation to y. Uva ursi & other astringents.

Inspissated Juices

The Acacia & Hypocistis, in were formerly much used, are scarce known at present. By y. accounts y. are given of them we may judge them to be simple & pure astringents, not endued in any peculiar property y. should induce us to give them a preference to any of y. Astringents in present practice.

Terra Catechu, Japan Earth

It is very improperly called Earth, for y. Substance is a vegetable inspissated Juice, in is freely employed in medicine. It is a tolerably powerful astringent, & often attended in good effects in y. Diarrhoea & Dysentery. Its Virtues are extracted both by water & spirit, & as it has no disagreeable taste or smell it is a very proper medicine. It is a substance of no high Value, but notwithstanding this, we hardly ever get it pure, but generally adulterated in earths, in we can discover

effectually by solution. This consideration should lead us to endeavor to find out a proper substitute of our own growth.

Sanguis Draconis, Dragons Blood

This continues still employed as an astringent, tho it contains no such virtues. It is a pure resinous body, insoluble in a watery menstruum & therefore probably also in ye. prima via. It was probably first introduced into Medicine on acct. of its colour, as all red plants were thought to be proper for stopping hemorrhages. It is conveniently employed for forming Alum into pills, as it readily melts to ye. Alum & forms a proper Mass wt. it. We should not powder it when we employ it for ye. purpose, & only take 1 part of Dragons Blood to 3 parts of Alum.

The Barks.

The Cortex Granatorum, Pomegranate bark & Quercus, Oak bark are both very astringent substances, ye. contain very little if any sensible bitterness. A proof of their astringency is, ye. they are ye. substances generally made use of for tanning, & are reckoned ye. strongest ye. are employed for ye. purpose. They are soluble in Water but then they afford only a weak infusion, & by long boiling ye. astringent quality is destroyed.

Cortex Fraxini Ash

This has a bitterness joined to its astringency, & approaching in its sensible qualities to ye. Peruvian bark, for wch. the ye. Hippocastanum or Horsechestnut have been substituted & even successfully employed for ye. cure of ye. same diseases ye. ye. bark

generally is. We have Sr. John Floyer's testimony of their being useful in fevers, where they acted by promoting sweat.

The Seeds of ye. Ash have also been employed in Medicine; they have likewise a bitterness joined wt. ye. astringency, wt. Haller calls ye. aromatic acrimony, & they promise to be a medicine of considerable efficacy. Both ye. bark & seed have been recommended as Nephritic & Lithontriptic. Gauber appears to be very confident in recommending them in these diseases, & Dr. Bold likewise gives his testimony in favour of their nephritic virtues. I think if in case ye. Usa Ursi can not be had, we should try whether they would not serve as a proper substitute for it.

Coffee Simarouba

This is an instance of ye. fate of medn. wt. in spite of being recommended wt. confidence & proofs brought of ye. success, still remain wt. are often rejected wout a fair trial being made wt. them. This is generally owing to ye. too great opinion we are led to entertain of them by those who first introduce them in practice, who generally publish them under ye. pompous name of specifics, & when we afterwards find ye. they will not remove every disease for wt. they are commended, we too hastily conclude ye. they are useful in none, & reject them wout any farther trial. It does not seem to be an astringent, if we are to judge from its sensible qualities, nor does it appear to be so from ye. acc. wt. the french writers give us of it, who first introduced it into practice. If it is given in large doses it generally either vomits or purges ye. patient but if we prescribe it in small doses it has no sensible operation.

Woods

Most, if not all Woods, contain something of astringency, but they have in general some other qualities joined wt. ye. astringency that render them improper for medical uses.

Lignum campechense. Logwood

Logwood, like y. other veg: astringents, is very difficult solution. We discover its astringency by somewhat of an austere styptic taste, but more manifestly by its forming an Ink w. Copperas. But if we are to judge from its sensible qualities, & y. weak Ink only it makes, I imagine it will be found to be only a very weak astringent, w. is still rendered weaker, by our employing it in decoction. This last we endeavour to obviate by reducing it into an extract; but this is a difficult process & seldom well executed; besides y. long boiling y. is requisite generally destroys y. astringency as much on one hand, as we gain on y. other by concentration. Some however think y. its weakness recommends it to practice; but I am well assured y. it is at best only a trifling medicine, & greatly inferior in every respect to many w. we have in y. Phlopoe.

Galla Galls

This is an excrescence in trees, w. is owing to y. puncture of Insects w. they make for to lay y. eggs, & every Gall is a Nidus or Nest of small flys or Insects. In practice we confine ourselves to those that grow on y. Oak & commonly get from abroad. But all y. Galls have a styptic quality, & I think y. term should be more general & comprehend all y. excrescences of y. diff. trees y. are produced in y. same manner. A proof of Galls being a very powerful astringent is, y. they are universally preferred for y. making of Ink, & also for tanning in those places where they occur in plenty. They are remarkable for giving out y. astringency more copiously in solution than any other vegetable astringent; & therefore for external uses, e.g. in fomentations, they are preferable to any of y. other aff.

They are certainly very powerful astringents, & might be very well given internally in those Cases where Astr. in general are may be exhibited w.th safety. From y.e Transactions of y.e French acad.y of Sciences we learn that they have been employed w.th success in y.e cure of Intermittents; & I have seen powders of Galls & Gentian remove Intermittents after y.e Bark had been tried in vain

Sanguis Melitensis. Lynomorium Linnæi

This is a Substance w.ch is not known in our Shops; Linnæus has wrote a Dissertation on it in w.ch he commends it highly in Hæmorrhages; & relates several cases of its use in Hæmorrhages of y.e Uterus w.ch had resisted all other remedies. It was first brought from y.e Island of Malta, & it is said y.t it only grows in one particular spot on y.e place, w.ch is constantly guarded, least it should be exhausted by some persons who would look more to y.r own Interests than y.e of y.e publick. But of late it has been found to grow on y.e Island of Jamaica & Dr. Brown mentions it in his History of y.e Island. It is commended in a most extraordinary manner by many Italian Physicians in Hæmorrhages of all kinds, & particularly in y.e Works of y.e academy of Sciences at Bologna you will find it many cases made w.th it. As it is a Plant w.ch grows in one of our own Islands, and has obtained such a great character amongst those who had an opportunity of trying it, I think we should endeavour to get it, as it would certainly be a very valuable addition to our Materia medica

I have now finished ye particular adstringentia, & shall in ye next place consider some medes whose principal action is not adstringent; but may still often be used in this view & whose action does in ye end correspond to those adstringent medes just mentioned.

1. Acids as Astringents.

I have already spoke somewhat of acids, under ye head of Nutrientia, & shall have occasion to speak of them more particularly when I treat of Antalkalina, & I am in ye place only consider them as astringents.

It is very manifest ye all acids are astringents, for if they are applied to ye skin they produce contraction & corrugation; & nothing is more common than ye even ye weakest acids will contract ye lips to such a degree as to deprive them of ye red colour, & hinder them to receive ye same quantity of blood ye they do in a natural state. With regard to ye diffe degree of adstringency in acids it is questioned whether ye be a property ~~in common to all acids, or whether it is~~ peculiar to some particular acid, or whether it be in common to all, & differs only in degree from ye diffe degrees of concentration. And some have imagined ye ye vitriolic & muriatic acids are naturally stronger ye ye nitrous & vegetable. Whether this be so or not, I think ye there is still a real difference between ye veg: & fossile acid. The veg: acid is liable to be changed in ye prima via by fermentation & ~~of losing its acid nature~~ losing ye nature of an acid before it enters ye blood; ye fossile acid is not liable to be changed by fermentation. The fossile acids also stimulate ye excretories; & if we expect this effect from ye veg: acids we will not obtain it unless they are given in large doses. There is even difference in ye respect in ye veg: acids. The native veg: acid is more liable to undergo changes, ye ye fermented acids, as it has both ye vinous & acetous fermentation to

go through, but fermented acids have passed through them. It is a doubt therefore whether ye acid fruits are given wth propriety in acidity. I think ye Vinegar would be preferable to them, unless ye native acid is combined wth such a portion of acidity as to have ye power of checking ye fermentation. And I think the German soldiers have some reason for ye practice of swallowing Vinegar & Cream when they are afflicted wth ye Dysentery. The fermented acid or Vinegar may be proper when we ~~only~~ intend to confine ye action to ye prima viæ, but where we want to have ye effect of ye acid extended over ye whole system as for in instance in Hæmorrhages, we should always prefer ye fossile acid. These have not only ye power of producing contraction, but they also at ye same time act as sedatives by diminishing ye motion. When I spoke of ye use of Astringents in general in hæmorrhages, I said ye they were often improper as they increased ye impetus of ye blood. But this objection does not apply to ye fossile acids; for they do not only act as astringents; but also, by taking off ye increased impetus of ye blood, prove sedative, both by diminishing ye moving power, and also by allaying ye intestine or fermentative motion of ye blood, in proportion as they enter into ye mass of blood.

2. Acetous Wines as Astringents

These act by ye acidity they contain; but they are liable to ye same objections as ye native acid. They have indeed gone through ye vinous fermentation; but generally only imperfectly, & they have besides still ye acetous to undergo; by wch means they may cause inconveniencies in ye prima viæ, & also undergo some changes there

before they enter y. mass of blood. Burnt wines are properly employed as astringents; for by this means their austerity is increased & they are rendered less liable to ferment. Upon y. whole wines are of little efficacy as astringents, & austere wines should only be preferred when it is necessary to give wine at all. There is often more nicety than judgment shewn in y. ~~to~~ choice of wines, & y. esteem in. is greatly artificial, often directly more than y. qualities. Red wines are however commonly to be preferred, as they are acid & austere. All y. others, except y. Moselle & rhenish, are of a stronger body, more heating & possess less of y. astringency.

3. Bitters as Astringents.

Bitterness is often joined in. astringency & it is doubtful why these pure bitters do not act as astringents. When they are combined in. astringents they have universally been considered as tonic & roborant. We shall afterwards consider whether this is owing to y. astringency or bitterness.

4. Sedatives as Astringents.

These are more indirectly so that any of y. former. I told you y. one of y. principal indications of astringents was to check Evacuations. This may be done either by astringents by contracting y. vessels, or by sedatives diminishing y. impetus of y. fluids.

5. Balsamics as Astringents.

I mention these here because they are greatly prescribed in preternatural & increased secretions of y. urinary passages, in gleets, gonorrhoeas &c. In y. prima via however their effects seem opposite to astriction & under y. head of stimu

parts I shall have occasion to consider them as Cathartics, & indeed they often prove excellent Cathartics, & are therefore improperly considered as astringents. I allow indeed y^t they will have ye effect of stopping a gleet, but I imagine this is owing to their exciting an inflamation in ye urinary passages to wch they have a natural tendency, this is illustrated by our employing Cantharides for ye same purpose.

Exsiccants have also been looked upon as astringents, but they do not act in ye same manner. Powders substances may be employed for ye purpose externally, but they have no manner of effect as astringents when given internally. There is a practical Indication for Exsiccants: vizt. for to absorb ye moisture on ye surface of ye body as eg. in Cases where the perspiration is too copious & becomes disagreeable. ~~Effe~~ The use of astringents would be dangerous in ye case, as they would check a critical evacuation, but Exsiccants will take off ye disagreeableness of ye discharge w^out suppressing it. Thus exsiccant powders are also employed in the Erysipelas, wch is an affection of ye rete mucosum; but neither do they act in this case as repellents or astringents; but by absorbing ye acrid mucus or liquor wch exsudes & taints pets & inflames ye adjoining parts. Practical writers have generally commended powders of Bole & Chalks for ye purpose; but then at ye same time ye ye absorb ye mucus form a hard crust wch it; wch is not ye case wch mealy powders, provided they are not too fine; oatmeal, on ye account, answers better than flower, for it absorbs ye mucus more effectually & is not so apt to form a crust wch it. These applications will often have ye effect of allaying & discussing ye inflamation, after spiritueous & oily med^s wch ye Sacch: saturni have been applied to no manner of purpose, & wch by y^e by ~~are~~ often affords wch dangerous consequences. We should apply ye meal on a cloth, for it will answer much better than if we strew it loosely on ye sores;

y. Country people use for y. purpose y. inside of y. meal cloths or bags & use w. propriety. —

This finishes what I had to say of Astringents, our next general Indication vice y. Emollients.

Emollients are such med. w. diminish y. cohesion of y. simple solids than are y. reverse of Astringents, w. I defined to be med. y. increase y. cohesion of y. simple solids. We had a difficulty in explaining y. operation of Astringents, as y. operation is complex; but w. regard to Emollients their operation may be readily explained. For whether we consider y. simple solid as composed of earth, interspersed w. gluten, or take them as dry pt. y. may be softened by y. interposition of fluid parts, or by thinning y. gluten, the effect still is y. same. They are applied in a double intention both to diminish y. cohesion & to soften y. parts & may act either by dissolving y. gluten or by introducing a larger proportion of fluid parts into y. fibre.

Emollients can hardly be said to act on y. moving fibre. They can only do so in so far as tension & firmness of y. simple fibre is connected w. y. oscillatory power of y. solids vivo. They differ in y. respect from Astringents, for these always propagate by y. action & have somewhat of a stimulating power. If y. Emollients do ever propagate y. action it is only in so far as they alter y. equilibrium, i.e. by relaxing a part they may cause a greater determination of y. fluids to y. part. It is on y. acct. that they have been very fond derivatives; but they are seldom used merely in y. intention. We seldom e.g. use pure oil to occasion a derivation, but generally employ heat at y. same time for y. purpose; but y. heat does not

act in ye case as an emollt but as a stimult & determines a greater flow of humours to ye part. The operation of Emollients is confined to ye external parts; for we can scarcely conceive any ~~internal~~ med. acting wn ye body as Emollients, unless we allow ye they can be taken in such prodigious quantities as to bring on a general relaxation by being immediately applied to every fibre of our body. By simple water indeed we may diminish ye Density of ye Blood & bring on laxity & debility of ye System; but ye is owing to ye body being by ye means deprived of its usual nourishment. Emollients they have been have effect on ye prima viae & relax ye Stomach & Intestines; but then they cannot do this by ye emollient virtue for ye Stomach & Intestines are lined wn mucus ye is at least equally if not more emollient than any liquid ye can be taken inwardly. It is extremely difficult to account for ye action of warm Water on ye Stomach. Many tell you ye upon a certain quantity of W being taken in ye fibres of ye Stomach are excited to contraction & by ye means to evacuate ye contents; but then why has not cold W ye same effect. I know no other way to account for this but ye Nature has an aversion to warm W wn tho it be a mild fluid is almost constantly rejected by vomiting.

Indication of Emollients

They are indicated in every case where there is too much dryness of ye simple Solids. In ye case they can only be applied externally for ye cure of fissures, chaps & indurations of ye surface.

2. Emollients are indicated in all cases of rigidity whether it be in ye simple solids or moving fibres. The effects of Emollients

are evident on y. simple solids if these are within our reach, & w. regard to y. moving fibre emollients may act by filling y. cellular texture w. water oil or mucilage; thus taking off y. tension of y. solid fibres & by y. diminishing y. oscillation of y. moving. 3. Emollients are indicated in Inflammation, independent of y. rigidity of y. part. 4. Emollients are indicated whenever we want to induce a greater laxity in order to cause a derivation or revulsion to y. part. They do this in consequence of heat & Moisture joined together; either of these applied simply will not have y. effect to so great a degree.

I said before y. they could not be given internally w. a View to relax y. system; they may however act as Demulcents in y. case, & cover or sheath y. acrimony of y. humour.

Of Emollients in w. their Virtues reside.

Wherever any substances act as emollients it is in consequence of y. Oil or Mucilage w. they contain. Where ever these occur free from acrimony they prove emollient; & wherever we find an emoll. virtue it is owing to y. presence of one or more of these. Water, as penetrating more immediately & quickly, is perhaps most considerable in producing relaxation; but then it is attended w. y. disadvantage of being soon dissipated; of taking off w. it part of y. and glutes & of leaving y. solids more friable than before. If oil could be so easily introduced its effects would be much more durable w. out y. inconvenience of Water. The extremities of y. apertures of y. Vessels on y. surface are extremely apt to be affected & stopped up by y. least causes. In hot Countries where uncleanliness is very general & apt to adhere to y. skin the warm bath is used w.

order to wash them off. At ye same time they rub ye Skin well wth oil, in order to obviate ye crispature to wch ye Skin would be liable, & to prevent its chopping. Mucilage is ~~of~~ composed of oil & V, & is of a mixed nature but approaches nearer to Water as it is more penetrating ye oil & also leaves ye part more dry & friable. Oil has been by some supposed an improper emollient, as from its tenacity it may stop up perspiration; & on ye acct. its use has been in a great measure abolished for surgery. But ye seems to be a theory that is not well grounded. For if this effect had been found in warm countries, where it is so much used & where perspiration is more necessary to health than in other countries; it would not be continued to be used daily by those people. Imagine ye unless oil is so thick as to dry on ye Skin it can hardly affect perspiration. Perspiration is performed wth some velocity, as any person may experience in himself who will take ye pains to render it visible; & ye velocity seems to be great enough to be capable of overcoming any resistance ye may be occasioned by such a fluid as oil. Nay I think it is much more probable ye oil may encourage ye perspiration by relaxing ye orifices of ye Vessels; at least we can hardly account for some of its effects on any other principle. 5. In a coryza where ye inner membrane of ye Nose is so swelled & tumified as hardly to allow of breathing, & in Children often prevents their being able to suck, oil ~~or~~ butter removes ye complaint speedily. It was formerly ye practice in an Angina to employ a Hand oil externally; the camphorated oil & caustic alkali are now more generally employed. The common people still use butter or oil for ye purpose & ye by producing a relaxation of ye external parts & promoting a freer perspiration, give also a considerable relaxation to ye internal swelling ——

The sensible qualities by wch. we discover Emollients, are a bland mucilaginous or oily taste wout acrimony.

Pharmaceutical treatment

Emollients are always extracted by ℣, & spirituous menstrua should never be employed, as their effects are quite opposite to relaxation. In some cases they may be extracted by oil, where an oily matter is lodged in yᵉ substance; but I am convinced yᵉ veg. matter wch. contain much oil will not yield yᵉ to an oily menstruum, & in these cases we should express them.

Particular Emollients

These may be ranged under 3 heads: Water, Mucilage & oil.

1. Aqua & Aqueous Bland

We have already spoken of yᵉ emollient virtues of these, & we shall afterwards have an opportunity to speak of yᵉ antispasmodic virtues. Their emollient virtues are almost entirely owing to yᵉ ℣, & tho we impregnate this, yet it is generally so slight, yᵉ it adds or diminishes but little for its virtues. We must however say somewhat of yᵉ Sy. yᵉ have been employed as Emollients.

Columniferæ

This is a quite natural order of plants, wch. comprehends a great many genera & species. There is only two of them yᵉ enter our Dispensatory List, viz. yᵉ Althea & Malva, tho I make no doubt but yᵉ others might be equally well employed when these are deficient, for as many as have hitherto been known, have been found to be bland & mucilaginous. The most powerful yᵉ we are acquainted wch. are yᵉ roots of yᵉ Althea or Mallow, wch. afford a Mucilage of very great use as a Demulcent. It may also be of use in external use as a emollient, but then it is

When we use it internally we may take about ℥j of ye root to ℔j of Water. It is of great service where there is acrimony in ye fauces or primæ viæ; & in chronic dysentery where ye patient is often seized wth terrible gripings, on acct of ye mucus of ye Intestines being abraded. In nephritic pains ye decoction of ye root is often attended wth surprizing success. When too violent a cathartic has been given we should order ye root in decoction to be taken plentifully. The root boiled in red wine makes an excellent brush to preserve ye teeth & keep them clean, & also for is much better for Children that are teething than any other substance, for it yields in some measure to ye gums. The mucilage suddenly takes off ye pains occasioned by blister, & taken internally prevents ye strangury ye is often brought on by ye external application of blisters. —

commonly so much greatly diluted w. Water; y. these effects are often owing to y. quantity of Water.

The root should not be employed quite fresh or quite dry, whether we intend it as an emollient or a demulcent. If it is quite fresh it is too much diluted w. V; when it is too dry y. mucilage is not easily extracted; but an intermediate state between both ought to be chosen; but we seldom have y. advantage if we take them from y. Shops. We might also prepare y. Marshmallow root in y. same manner as Salep is prepared; & if we were to reduce it into a powder similar to y. we could be more certain of extracting its mucilage.

Farinacea

I had occasion to mention these under y. head of Nutrientia. They come under y. head of emollients on acct. of y. oil they contain. When I treated of them before I mentioned y. difference w. regard to y. quantity of oil they contained; & from y. you will be able to know why y. Leguminis are preferable to y. Cerealia as Emollients. They are employed externally in poultices. Those made of y. Cerealia soon become dry, while those y. are made of y. Leguminis are more oily & therefore retain y. moisture much longer. They have been employed as favourite applications in diseases of y. eyes. For y. purpose Beanmeal is preferable to oatmeal & this again is superior to Wheatmeal by attracting more moisture & not being so apt to harden. Ibid.

Semen Fœnugraeci

In some Countries these are employed as food. The plant is very acrid & even poisonous; but y. seeds are farinaceous & mild. It is an oily seed & yields its oil by expression, but not in so large a quantity as Linseed & may therefore be disregarded.

Semen Cydoniorum

It approaches in its nature to ye Cacalia, & might be used as food. It affords a mucilage w.out ye oil separating from it, & therefore of very ready diffusion in V. It is remarked ye 2a small quantity of Salep thickens a considerable portion of V; but Linseed have ye effect in a much more remarkable manner

They may be taken in Infusion, and are excellent demulcents, tho' sitting heavy on ye stomach.

Semen Fenugraeci.

This contains an oily mucilage joined w. acrimony & a disagreable rank odour, w. has confined its use almost entirely to ye Farrier. It is a firm compact substance, & ye mucilage difficultly extracted. It may be good in poultices, but then it must be accurately powdered. This & ye foregoing are inferior to

Linseed.

Which has every advantage of mucilage & oil in its seed & both externally & internally answers every purpose of ye others. On acct of the large quantity of oil it contains, it is disagreable to some stomachs, & cannot on ye acct be given in suffict quantity. In these cases ye Althea root may very properly be substituted for it.

Semen Psyllij Plantaginis

This is ye seed of an acrid plant ye contains some mucilage w. somewhat of ye acrimony of ye plant ye renders it nauseous & disagreeable. Both on ye acct & as it is a plant of foreign country this we may w. great propriety do w.out it

I might mention a great many more, but y. it would be taking up your time w. needless repetitions. In short any mild plant y. contains oil or mucilage may be added to our List of Emollients.

Oleracea

Physicians have ranked these amongst y. emollients; but as they have sensible y. oil or Mucilage ~~were~~ necessary ingredients in emollients, and as this set of plants contains neither, they explain their emollient Virtues from ~~y Bitter~~ a saline nitrous quality w. they are supposed to contain. But it is impossible if any saline matter can soften our fibres; but even granting it when, yet y. small quantity contained in these plants could not have y. effect; & if it were in a large proportion ~~their~~ its stimulus would counteract y. intention & therefore y. effects of Oleracea ~~from~~ a supposed nitrous quality are merely imaginary. They are generally used in emollient Glysters, but in these they act as a very mild acute stimulus ~~from~~ owing to a small portion of saline matter w. they contain ——— Of this order are

y. Abiptolep. Arache, Beta Beet, both not containing any active qualities.

Bonus Henricus English Mercury

I mention this merely as an instance of y. necessity of acquiring y. various Synonyme in Botany. The botanical name has been applied both to this & French mercury, w. is an acrid plant but is commonly mistaken for y. Bon: henricus w. is mild & has been kept in y. shops through mistake for y. latter. The mistake has perhaps been useful, as it may be better adapted for Glysters, but as an Emollient it differs widely from y. Bon: henricus ———

Alsine, Chickweed

This is a mild insipid plant. Sometimes it is ranked as an astringent & other as an emollt., but its Virtues are very inconsiderable in either intention

Branca ursina

This contains only an inconsiderable quantity of Mucilage

Melilotus Melilot

This is commonly recomended as an emollient, but it contains an acrimony, y. destroys its emollient virtues; it belongs indeed to a mild Class of plants, w. used for food, but this cannot be employed for y. purpose on acc. of its acrimony. It enters into some of our plasters, but if it ~~does~~ exerts any Virtue it is owing to y. acrimony for w. it ought to be rejected. It gives y. plaister however a good colour & an agreeable smell

Parietaria, Pellitory. —

This ~~is~~ stands also recommended as an emollient, but without any reason. It may act in some measure as an emollient in y. same manner as y. oleracea w. I spoke of before. It has also been recomended ~~as~~ a pectoral & diuretic, but upon no better foundation than as an emollient

Saponaria. Soapwort

This has probably been considered as an emollient on acc. of y. soapy smoothness of its Leaves; but it has no pretension to any such virtues, as its juice is rather acrid than emollient

Verbascum Mullein

This has also been reckoned an emollient, but for no other reason but on acc. of y. softness of its Leaves. It is surprizing y. it should be called emollient & demulcent, tho it has no perceptible mucilage belongs to y. proseronous order of plants called y. Luride & when chewed, gives no taste at first, but afterwards discovers

a considerable latent acrimony. I mention these plants under ye head of emollients, because they have generally been looked upon as such by most medical writers, and to guard you against following them in their errors —

Rad: Lilior: alb: & Cepa cocta.

Both contain a slimy mucilaginous matter w^h some acrimony, w^h is dissipated by boiling & they are therefore extremely proper to enter all our emollient poultices —

Rea prepa blanda.

Vegetable expressed oils all agree in Virtue, if they be equally bland, there is therefore no occasion to give ~~any~~ a preference to any of them. They may be obtained by decoction, but ye general & best method is to extract them by expression

Emollientia ex Animalibus

Now w^h we see are ye Milk & fats of diff^t animals. Milk contains an oil, but I imagine it ~~proves~~ emollient in ye same manner as Broth does, & ~~not~~ y^t its emollt. Virtues are hardly owing to ye oil it contains. With regard to ye fats of animals, there is no occasion to make any distinction, for they do not differ in Virtue w^h is entirely analogous to ye Vg: expressed oils. The only distinction y^t is of use is dividing them into Tallow & Axunge, as one may be proper ~~where~~ where ye other cannot be conveniently employed on acct of its consistence. Axunge of ye Viper has been generally looked upon as preferable to any of ye others in diseases of ye Eyes; but any mild & equally fluid fat will answer entirely ye same purposes —

We have now finished ye. consideration of ye. meds. wch. act on ye. simple solids, & are in ye. next place to proceed to ye. consideration of those wch. act on ye. moving fibres. I shall here repeat an observation wch. I made formerly: viz. ye. meds. wch. act on ye. simple solids do not deserve so much notice as they have generally been imagined. It was indeed unavoidable to treat of Materia Medica ~~if a per~~ in a compleat System of Med. Med: but the those meds. wch alter ye. simple solids occasionally & by degrees are of no great importance as remedys. I observed ye. Emollients were almost confined ~~to ye. part to wch they are immediately applied~~ to external applications, & did not propagate their effects much beyond ye. part affected, unless in so far as ye. Heat, joined wch. them, might extend ye. effect. The astringents were of more considerable & more extensive operation, but then their effects are not confined to ye. simple solids; for if their action were confined to these, we could only produce very inconsiderable & slow changes. The Medicines wch. I am to speak of next are more extensive in ye. operations; but then these are also more difficulty accounted for. The laws of ye. nervous power are still very obscure to us, & therefore meds. ye. operate on this, must also be obscure in ye. manner of operation.

Stimulantia

These are such meds. as excite ye. action of ye. moving fibre in ye. living animal, & have no effect on dead bodies. Whatever excites motion or contraction in an anml. body is a stimulus; meds. wch. have this effect, are called Stimulants. I shall endeavour in ye. 1st. place to explain ye. manner of Operation. Stimulants may be considered as of two kinds in ye. operation. 1. Those wch. act indirectly i.e. They act on ye. organs of sense, by wch. means a perception is excited in ye. brain or Sensor: communicating, in consequence of wch. ye. nervous power flows more copiously into ye. whole or a particular part of ye. System. 2. Are those kind of stimuli that act dir.

rectly on y. moving fibre, w. out y. intervention of y. Brain or Sens: comm. these are called direct Stimuli. The former or indirect Stimuli are y. most common & universal, & y. have given occasion to some Physicians to doubt whether there were any Stimuli y. acted independently of y. sensor: common. But I think it is pretty evident y. Stimulants may excite motions ~~[illegible]~~ in y. parts to w. they are immediately applied, independent of y. sens: commune. For if we separate a single fibre of muscle from y. body, w. certainly separates it from any connexion w. y. brain or Nerves, we may by stimulants make it contract whilst it remains warm. Hence I would allege y. mod. may act directly on y. moving fibres, & besides we cannot in many instances perceive any previous effects on y. Sensor: commune. Stimulants are of 2 kinds: The mechanical & chemical Stimuli. In y. 1st y. operation depends on y. figure: for instance a sharp knife cuts & stimulates our fibres; y. ~~action~~ effect here depend on y. edge of y. knife. The 2d kind or chemical stimuli are such where y. operation is owing to a peculiar property of a body w. we do not know e.g. Heat is a stimulus; but we do not know why it stimulates. Their operation is of 2 kinds: 1. Those w. are in common & act on every fibre; e.g. a knife will cut any fibre. 2. Those w. are confined to a particular pt. of y. System only e.g. The rays of Light only affect y. eyes.

Effects of Stimulants.

Stimulants universally propagate y. effects to distant parts from those to w. they are immediately applied: most of them extend them to some distance, many propagate them over y. whole System. ~~The~~ Different stimuli have their effects varied both in degree & manner of affecting y. parts. Some are disposed to affect parts at a distance, w. out affecting any of y. intermediate, or any other parts of y. body. A pimple on y. Haunch, for e.g.

has generally been observed to affect ye. opposite shoulder, & I knew a Gentle-
man who felt an uneasy tickling in ye. soles of his feet if a dog
licked his hand somewhat roughly. This difference in ye. effects of stimuli
in ye. parts to wh. they are applied seems to depend on arbitrary
laws of ye. anl. oeconomy. Thus sneezing is produced from tickling ye.
nose, coughing arises from irritation of any part of ye. trachea. These
effects are generally ascribed to a concent. or sympathy of ye. nerves,
but this will not explain ye. matter; for if we ask why is ye. one
part affected preferably to another? ~~The answer~~ no satisfactory answer
can be given. Why does a puncture or laceration of a Nerve in ye.
finger or toe produce a Hiccough? ~~You~~ Nobody has yet solved this in
a satisfactory manner. These Instances only serve to shew us ye. ye.
effects of stimuli may be strangely diversified. I have mentioned this
Instances for ye. sake of making ye. observation: ye. many & perhaps
most med. act on ye. stomach, & by the stimulus wh. they occasion
there, their effects are propagated over ye. rest of ye. System. It is true we
are not able to explain ye. manner of ye. operation; but this is still no
objection to ye. theory; for ~~we~~ as I observed just now, we are not able to acct.
for much more obvious effects yt. happen every day & are wh. in ye. observa-
tion of every person.
The action of Stimulants is much regulated by & depends greatly on, habit & custom.
When they act on ye. organs of sense, ye. force of impression is diminished
by repetition, & if we expect ye. ye. medecine should have ye. same effect as
when we prescribed it at first, ye. dose must be considerably encreased.
~~Thus~~ We is necessary ye. Doc should observe ye. in practice, & also ye. ye. diffe-
rence regard ~~ye~~ motion & sensation. Whenever motions are excited by stimuli,
they become easier upon repetition, but sensations become more obscure on
freq. repetition. In other words custom encreases ye. facility of active motions & diminishes
ye. passive

Indications of Stimulants

1. They are indicated in all cases of languid motion i.e. not merely in weakness; but in all cases where ye. motions of ye. system are inert, weak & slow.

1. Effects in ye. System of Blood vessels

1. They are indicated when ye. motion of ye. blood is suddenly stopped, as in fainting, lypothymy &c. 2. When ye. degree of languor is neither so sudden nor so considerable, but more permanent in its kind e.g. in ye. Chlorosis wh. is a disease often arising from an affection of ye. uterus, but it may also be owing to other causes. Analogous to ye. Chlorosis is ye. Cachexy, wh. in wh. in consequence of various obstructions of ye. viscera a languor & inertia is induced in ye. system. Stimulants are particularly of use in those cases of Cachexy when ye. inertia is so great as to be attended wh. stagnation of ye. fluids in particular parts, as in Cachexy joined wh. a dropsy, or what is generally ~~now~~ meant by phlegmatic habits. 3. Stimulants are indicated in Gangrene, wh. is often ye. effect of motion & Inflammation; but it also comes on from an edematous, hydropic & cachectic state of ye. body; & in these cases Stimulants are necessary. In some cases also of Gangrene proceeding from Inflammation i.e. when an inertia succeeds afterwards Stimulants are found useful. 4. They are indicated in intermittent fevers, where ye. fit is often prevented from coming on by a proper use of them. I shall not enter into ye. theory of fevers here, ~~nor shall~~ nor consider where ye. cause is ye. inertia flush nervosi; it is enough for us to know ye. ye. attack of ye. paroxysm is always attended wh. an inertia, & it is easy to see how still Stimulants will act. They are also recommended in continued fevers; but ye. use here is more doubtful than in intermittents; & our theory of fevers wh. regard to ye. proper use of Stimulants in fevers is still very obscure & uncertain.

2. Effects on ye. nervous System

There are diseases in wh. there is an evident inertia ye. takes place only in ye. nervous system. Pr. Paley ~~certainly commit in~~ is certainly owing to a weaker flow, or ~~to~~ an interrup-

tion of ye nervous power into ye part affected. The nature of ye obstructing cause has not yet been investigated & explained, & there may possibly be cases of Palsies ye may be ~~hurt~~ aggravated by ye use of stimulants; but it is nevertheless certain ye stimulants often cure them. 2. Stimulants are indicated in various diseases of ye brain. Vertigo, Apoplexy, Lethargy &c. all of these consist in a weaker ~~influx~~ of ye nervous power through ye brain. Apoplexy is generally distinguished into ye sanguineous & serous. The application of stimulants has been confined to ye latter species. I think ye is a distinction ye has some foundation, & ye there may be cases where there is only an obstruction in ye serous effusion. It is however not so certain whether we should banish ye use of stimulants entirely in a sanguineous apoplexy. It is a common notion ye ye sanguineous apoplexy, returns only 3 times, & ye if a person has escaped 3 paroxysms he is ~~afterwards~~ free from any future attacks; but this is an error, for there are instances of its returning oftener, & where ye approaching paroxysm could be foretold by a faltering in ye speech & obviated by ye use of stimulants, & after ye paroxysm had come on it was relieved by stimulants. And if the patient was at last carried off by a fit, it all ye marks of sanguineous apoplexy were found on dissection: viz. distension of ye veins of ye brain & extravasations of blood. 3. Stimulants have been of service in those species of headache ye are attended wth a paleness, coldness & languor of ye whole body. It is difficult always to know wt particular part is affected; for sometimes it appears to be only an external affection, when Oils & Blisters generally give relief; & sometimes its seat appears to be wn in ye cranium & ye brain to be affected.

Effects of stimulants in ye alimentary canal.

Nervous symptoms are more freq. in ye alimentary canal than in any other part of ye body. They are sometimes owing to a bad chylification & accessency, manifestly depending on inertia & languid action, wch are relieved by stimulants. They sometimes appear in ye whole tract of ye alimentary canal, owing to slow motions occasioning habitual costiveness; & in ye case too stimulants & aromatics are freqly found to be of use. I had formerly an occasi

to observe ye weakness often causes Spasms; these freq.ly occur in an inertia of ye alimentary canal, & may be taken off by stimulants promoting a stronger action. I shall have an opportunity to speak of ye more fully under ye head of antispasmodics. 3. Stimulants are freq.ly indicated in ye hypochondriac & hysteric diseases in wh. there are evident marks of an excess flatulency. 4.th Stimulants are indicated in another species of Languor viz. ye Gout. The nature of ye disease is still involved in obscurity. Tho it has naturally a disposition to appear in ye extremities, yet has still a peculiar connection wt. ye stomach. It is a certain fact ye if we intend to ~~procure~~ keep ye Gout in ye extremities, we must strengthen ye tone of ye stomach & prima via; for whatever weakens ye power of that force wh. ~~makes ye Gout~~ drives ye Gout to ye extremities, makes it return on ye stomach. We shall afterwards, when we come to speak of particular stimulants, have occasion to treat ye more fully.

Contraindications of Stimulants.

1. In ye Sanguiferous System.

As Stimulants were indicated in cases of a languid motion, it follows of course ye they are improper where ye motions are increased. This is at least certain in hemorrhages, inflamations &c. ye depend upon an increased impetus of ye fluids, & where ever there is a tendency to these. But it is not so clear in fevers. Stimulants are hurtful in every inflamatory fever; but when a fever is accompanied wt. languor & weakness, stimulants are useful. We are not however to exhibit them always when ye pulse sinks, for ye pulse may sink even in inflamatory diseases; but they are useful ~~in~~ when ye disease is not attended wt. any inflamatory symptoms, & where its long continuance has weakened ye patient. We may lay it down as a general rule ye Stimulants are improper in ye beginning of fevers, & should for ye most part only be applied in ye end.

Stimulants are improper in all kinds of obstruction, tho they be attended w.th weakness & inertia, for from ye nature, duration & degree of ye obstruction we know ye it is not to be overcome by suddenly bearing ye impetus of ye blood, but that by ye means we are in danger of fixing it more & even destroying ye structure of ye part. Stimulants may however be useful if they are thrown in slowly; but ye usual method of solving ye obstruction is to relax ye spasm & dissolve ye fluids. Stimulants are hurtful whenever ye solids are overstretched or wherever from other causes they are rendered tender & friable, rupture forming, wit is called. This they are in all cases where ye fluids are remarkably thin & acrid. This occurs in two cases particularly, Cachexy & Scurvy. By ye former, Physicians generally mean obstructions in ye lower Belly, where in many cases stimulants would rather heap ye effect of fixing ye obstruction & destroying ye part by taxing ye solids already overstretched by ye obstruction & rendered friable by acrimony. ~~This~~ We must pay attention to ye cause of Cachexy, for in my last Lecture I told you ye Stimulants might be of use in Cachexy. In ye Scurvy, where ye fluids have arrived to such a degree of acrimony as to have eroded ye Vessels, & have been poured out, causing obstructions, Stimulants are entirely hurtful. We do indeed sometimes use Stimulants in this disease, but they are of such a nature as only to promote some excretions w.th out forcing motion & stimulating ye whole system.

Remarks w.th regard to ye use of Stimulants.

The pref. use of Stimulants destroys ye tone of ye moving fibres & diminishes ye mobility of ye nervous fluid. Nature seems to have adapted our organs to ye relish of ye mild & bland, for such are ye

substances wch. we employ in food & she has given us an aversion to ye. poisonous & stimulant too. Few persons are pelled wth ye. mild Bland, but there are freq. instances of persons entertaining an aversion for ye. Stimulant. Medc. are distinguished for acrid & active substances, & an aversion to them is also universal & therefore Stimulants are suited to ye. body as medc. but they are in ye. main hurtful to ye. System & tend to destroy its tone. On ye. acct. then we should avoid ye. use of Stimulants as much as possible; for if we intend to produce any considerable effect by them we must gradually enlarge ye. dose, & at length give them in such quantities ye. they will destroy ye. tone of ye. stomach & of ye. whole System. Nature has very wisely given us ~~an~~ most ye. greatest aversion to them in ye. first part of Life, as they would then be most hurtful, & would, before ye. natural duration of Life was expired, require to be taken in such quantities as would put an end to us before our time. In ye. latter part of life we have a greater relish for them, as ye. our Life draws to a period & we want something to excite those appetites wch. are natural to Youth & Vigour. With regard to ye. general use therefore it is highly necessary to observe ye. small doses should should only be given in ye. beginning ye. we may increase ye. dose, as ye. circumstances require, wch. out injuring ye. constitution. ~~It is~~ In ye. beginning of exhibiting Stimulants, we generally find them attended wth. good effects, but in progress of time they become habitual & lose their virtues. On ye. acct. then, if we possibly can, we should freqty. interrupt ye. exhibition, in order to prevent them from becoming

habitual. It is very common for Physicians to prescribe a medicine for years; but this is an improper practice, & it would in y. end be much more to y. advantage of y. patient, if we frequently changed our med.s for by y. means we should always find our remedies attended w.th y. same effects, as when they were first given ——— I just now recommended it to you y. we should always begin w.th small doses; but y. there is an exception to this rule; for if we intend to produce a sudden & considerable effect, y. medicine should be given in as large a dose as it can be taken w.th out endangering y. patient. In no case do Physicians so often deceive themselves as in y. use of Opiates, where they often lose y. end by adering them in small but repeated doses, when they might have reaped considerable benefit from them by giving a full dose at once. We should beware also in our exhibition of Stimulants, especially when we prescribe them in spasmodic affections. I have now spoke of y. principal Indications of Stimulants but y. effects y. are expected from them, are seldom obtained from y. Stimulants y. are kept in y. Shops. Debility or weakness is much better remedyed by cold air, y. cold bath, exercise & diet. There are indeed Stimulants, but then they differ widely from y. Stimulants w.ch we are to speak of now; w.ch, unless we require immediate & sudden Stimulants to be applyed to y. System, had better be laid aside, & those means employed, for from these we shall obtain y. same effects more durably & w.th much less hurt to y. system. The use of y. officinell Stimuli has much declined of late & continues to do so; many are now disregarded in practice & are only known in y. Lists of our Dispensatorys. ———

Foundation of ye Stimulant Virtues in ye Sensible qualities.

We in general discover a Stimt. virtue by a strong taste & odour of all substances ye make a strong impression on our senses may be considered stimulating. These may also be sedative & some antispasmodic, but we these have always more or less of a stimulant virtue. We are not however always to imagine a stimulant quality where we discover a fragrant odour or a poignant taste. The fragrancy often depends on a small part of ye substance, & ye poignancy on ye extreme volatility of ye part; & this may be in so inconsiderable a quantity as to be a medicine of little virtue, tho at ye same time so volatile as strongly affect our smell. We can be somewhat sure when ye substance is acrid to taste. We must however take notice ye we cannot always be sure ye if it will affect ye stomach in ye same manner it does the tongue. Some substances ye are not acrid appear to be sedative for ye impression on ye tongue, but prove stimulant in ye stomach, & others again ye prove stimulant to ye taste have sedative effects when taken into ye stomach. The diffs. stimulants differ also in qualities & effects; here we might perhaps investigate for ye sensible qualities or for ye diffs. degrees & kinds of acrimony; but this matter is still too obscure to be reduced under general rules, & I can only mention it under every particular subject.

We shall next enquire in what part ye stim. virtue is lodged. This is very universally in ye essential oils of plants; ye saline parts are not remarkably stimulant. Wherever therefore we discover an essential oil we may also in some measure judge of ye stimulant virtue. We must yet however imagine ye every plant ye affords an essential oil by distn. is a stimulant, for many of them are of a mild nature. Some substances again ye are

acrid to ye. taste give out a mild oil, as Cloves. From this it would seem that ye. acrimony does not always reside in an essential oil. It is by some said to be lodged in a resin; but ye. amounts to ye. same thing, as ye. medical virtues of resins depend on ye. essential oil. Acrimony often appears to be lodged in a gummy matter soluble in water. The acrid parts are said to be so extremely volatile in ye. fluid, yt. they cannot be obtained in ye. form of essential oils, & it is said ye. in Mustard & ye. Cruciferous kind ye. acrimony is not lodged in ye. essential oil, but in a subtile volatile part dissipable in V. But I find yt. by proper management an essential oil may be obtained from these substances containing all ye. acrimony & I am therefore inclined to believe ye. ye. acrimony is lodged in an essential oil, tho ye. be extremely volatile & in some measure mixed w. water.

Pharmaceutical treatment

~~Our acrid~~ The virtues of our acrid stimulants should in genl. be extracted by Alkohol. In some it may be extracted by V, but it is doubtful whether we can obtain so powerful an impregnation, as when we employ Alkohol. We should first digest ye. substance w. ye. Alkohol & then concentrate our impregnation by distilling off part of it. By this means we may obtain finer & much purer oils than any in ye. Shops. Boerhaave orders this method for Saffron, but it may be applied to many other plants. There is a very common preparation in ye. Shops viz. an impregnation of essential oil in V, wch are called distilled waters. This impregnation is not always obtained & ye. oil is sometimes so fixed as not to rise. Altho we only take ye. particular part of ye. plant yt. contains ye. oil, yet we often find ye. substance of such a texture as not to yield the oil. Sometimes we cannot extract ye. essential

ed without giving it an empyreumatic taint ye. renders it unfit for internal use. This might induce us to use stimulants in substance, since we find ye. there is a virtue in ye. plant wh. we cannot procure by any extract, & our stomach can dissolve them better than any other menstruum. If we use them in substance we must be cautious in what form we give them, for by drying & powdering ye. volatile part wh. if ye. virtues are lost. If ye. oil is of a fixed nature stimulants should be given in substance, & therefore Infusions are improper.

Particular Stimulants.

I said before ye. every substance endued wh. smell or taste might be looked upon as a Stimulant; you will may therefore readily imagine ye. there must be a great variety. I shall first treat of those ye. have an analogous virtues & come under ye. same natural order. — Verticillata

This is a very natural & complete order; readily known & agreeing in most particulars. Their virtues are much ye. same & might be given in few words; but they have been disposed under diff. heads by Authors ~~as ye.~~ according to ye. different virtues they are supposed to possess. They are in general all antispasmodic & may be useful in frigidis cibri morbis. They may all prove antispasmodic in affections of ye. breast; by stimulating ye. stomach they may prove antispasmodic there; by stimulating ye. system in general they may prove alexipharmac. These are some of them, however ye. are more particularly suited to these diff. indications than other, & I shall therefore divide them according as they answer these indications best.

Cephalic Verticillata

These are in general grateful to ye. nerves, exciting ye. nervous power

It are adapted to all cold diseases of ye head, Lethargy, Apoplexy, Palsy, Weakness of sight, giddiness, & lossness of memory & many other diseases. These are least their use & we believe ye Writers of Physicians.

Betony. Betonica.

Many have been very lavish in ye praises of ye plant; tho if we are to judge from its sensible qualities we shall find little foundation for their praises. Geoffroy has given us a catalogue of a page long merely on ye virtues of Betony. But it is found ~~very little~~ in reality to possess very trifling virtues. It is a mild Stimulatory, exciting sneezing as shall be mentioned under ye head of Errhines. It has been used as a hypnotic & anodyne by Simon Paulli & Bartholine. But such virtues can be discovered in ye bark & leaves. The root is an acrid emetic substance, & may perhaps possess considerable virtues. — Melissa Balm

Many virtues have been attributed to this. In sensible qualities it is ye weakest of its class. It gives a weak distilled water & a weak solution.

Lavandula, Lavender, Majorana, Marjoram, Marum vulgare Mastich, Rosmarinus Rosemary. All these yield a large proportion of essential oil & are of a fragrant odour, on which ye cephalic virtues depend. Their virtues are not very remarkable in ye quantity in wh. we generally employ them or ye impregnations we can obtain from them. Whenever ye virtue depends on essential oil it may prove inflammatory & hurt ye stomach

Stoechas arabica. French Lavender. Dictamnus cretica. Dittany of Crete.

These are ye productions of hot climates & therefore they contain more acrid essential oil & more powerful virtues. They cannot be brought into ye port of ye world without losing much of these qualities, so ye they are generally neglected in our shops

Pectoral Verticillate

Hyssopus, Hyssop, Hedera terrestris, Ground Ivy, Pulegium, Pennyroyal.

The term of Pectoral has been taken in diff.t senses by many Physicians. I mean by it such med.s as have y.e power of promoting secretion of mucus in y.e bronchia. These have generally been reckoned pectoral; but there are many Instances where they have not given any relief by promoting expectoration. Ground Ivy has been greatly commended. Some have said y.t it will cure an Emphysema; for w.h y.e Surgeons Instrum.t alone seems to be y.e proper remedy. Hyssop is a plant y.t promises greater virtues; but it is now also neglected for y.e more active Pulegium or Pennyroyal. It is said y.t an infusion of y.e leaves in Water will dissuade Ecchymosis. Hyssop has also been tried in cases of this kind, but it is not found to have any superior virtues to other aromatics. The Pennyroyal is a powerful antispasmodic, but has as great pectoral virtues. It is recommended in y.e Chincough, w.h is a purely spasmodic disease, & tho here it may be of service as an antispasmodic. Some Women who menstruate w.t difficulty, on acc.t of spasms in y.e Stomach & Bowels, have found Pennyroyal tea of service for these complaints.

Stomachic Verticillate

Mentha Sativa Common Mint & Septa Catment have been considered as Stomachics; but they are weak

Mentha Piperatis. Peppermint

It is one of y.e principal Aromatics & Stimulants & one of y.e fully tones for w.h we are obliged to Botanists. It is one of y.e most

subtle & penetrating of its class. Its action is quick & rapid & as quickly diffused over ye System as any I know. There is a difference in ye action of stimuli, some act on ye part to wh they are immediately applied, some, like ye peppermint, do not affect ye part so peculiarly, but in a more equal manner extend ye action over ye System. Those wh act principally on ye part to wh they are applied, are apt to excite inflammation. The Pepper mint not having this inconvenience is a valuable medicine. Its virtues are antispasmodic in ye stomach & in some measure over ye whole System. The Spearmint, & all ye other species of Mint, have ye same qualities, but in a less degree, are less extensive in ye action & more apt to produce inflammation. The Pennyroyal in a dry soil approaches nearest to ye peppermint. The Catmint approaches it both in appearance & virtues. All are antispasmodic; for wh you ~~will~~ can understand ye stomachic quality. I can see no foundation for ye astringent quality ascribed to Mint; much less for its anti venereal virtues, wh are said to be ye it lessens ye seminal secretion & its irregular emission in nocturnal pollutions. The latter generally in lax relaxable systems, & antispasmodics especially Carpshire, and found useful, & perhaps if Peppermint could be rendered durable in its operation, it might have similar effects.

Marum Syriac: Satureja, Serpillum, Hyssopus
Syrian Marjoram, Lavender, Mother of Thyme, Thyme

These 4 are not particularly adapted to any ~~part~~ certain part of ye body; they are ye most acrid & most considerable stimulants of ye class, good Antispasmodics when taken into ye stomach

but more liable to produce Inflammation than y. former. The two first are y. most penetrating of them; y. Sesquillum in y. warmest y. Climate affords. In slight Infusions, Drank as Tea, it is grateful to y. Stomach. The relaxing effects of warm Water may be obviated by y. & other aromatics of y. same kind. Sesquillum affords a pleasant distilled V, wch. should be in common use. It is more durable but less active & penetrating in its operation, than Peppermint. Thyme is less aromatic & contains less essential oil wch. more bitterness & more manifest astringency. It is not much employed in Medicine

Sylvia, Chamædris, Scordium

Sage, Germander. Water germander.

These are commonly said to be alexipharmic. They may be useful in promoting sweat, as well as y. other med. of this class, if they are given wch. a suff. quantity of warm water. They are said to expel y. morbific matter of fever & of Contagion; but this is not intelligible. Chamædris enters into y. Powders for y. Gout. I do not doubt but it may be useful as a bitter aromatic, but we shall account for its preventing y. appearance of y. Gout in y. extremities after I have treated of y. other Ingredients of wch. the Gout powder is composed. A long continued use of these plants is found hurtful. It has been observed y. on y. constant use of Sage tea a stiffness of y. Eyes has ensued, y. Eyelids not moving on y. ball of y. Eye, & y. Eyes becoming liable to Suffusion & Inflammation. There are many other bitter plants y. are said to have this effect

Umbellata

This order is as entire & strictly natural as any other. Most of

Sem: Anisi, Anis Seed, Cari, Carraway Seed, Foeniculi, Fennel Seeds
Dauci wild Carrot Seeds, Dauci Seed: Candy Carrots, Cypmini, Cum

* Angelica, Lovage, Burnet Saxifrage, Italian Alexanders

y. plants are safe & innocent, but there are some of this class y. are of a poysonous nature. The Verticillata, wh. is y. order I just now treated of, & y. Siliquosa, y. following order have no exceptions of this kind. If y. umbellata grow in high & dry situations they are in general safe, but if they grow in moist wet places or even when y. Summers are very wet, they are often found to possess deleterious qualities. It is chiefly y. Seeds of these plants that we use. The Coriander Seeds have an agreeable aromatic flavour, but y. plant is fœtid, disagreeable & even suspected of poysonous qualities. The effects of y. Leaves of these plants is hardly known, as they are not made use of in medicine. Four plants of this Order have y. Virtues chiefly in y. Root viz. Angelica, Levisticum, Pimpinella, Saxifrage, & Seseli Meseleum. The roots of these do contain a great quantity of a warm aromatic resin, wh. they afford in an elegant form when wounded in y. Spring & it is to be lamented y. there are no pains taken to collect our native resins of this kind. The Pimpinella Saxifraga is greatly recomended by Stahl & his followers as an Alexipharmac. It is y. Seeds of this order of plants y. are chiefly made use of in Medicine. They all agree in one common virtue. They are all, to speak in y. common Language, Carminative i.e. Antispasmodics in y. sense viz. assisting digestion, relieving headaches arising from crudities, dispelling flatulencies & curing Cholics. These Virtues they certainly possess, & they depend on an essential oil manifest in all these plants, wh. is remarkably aromatic wh. out acrimony or suspicion of being of an inflamatory nature & therefore are y. safest of y. Aromata, wh. we can use in these intentions. They are chiefly natives of Europe, & seem intended

by Nature chiefly for cold climates in wh. there is a great tendency to inflammation. On y. acct. they are very proper condts. for animal food, for wh. we improperly substitute y. aromatics of y. torrid Zone wh. are designed for vegetable diet & are of an acrid inflamatory nature. The Seeds of y. Umbellata seem peculiarly adapted for children. Their fine y. acrimony of y. Milk are liable to cholic pains; the Nurses in order to mitigate them generally very improperly apply Spirits & warm punch. Anise Seeds are very effectual for this purpose, as they act in a very ~~inconsiderable~~ small dose & therefore are safe both as there is no hazard of inducing bad habits or stimulating too much. They have besides these virtues wh. they do in reality possess, many others attributed to them. They are said to encrease y. Milk of Nurses. They do indeed come off unchanged in it, & sometimes by giving them to y. Nurse they may through y. Milk be conveyed to y. children if labouring under cholics, & they will often have y. effect of removing these complaints, whether they be owing to y. natural disposition of y. child or to y. nature & quality of y. milk. It may be supposed then y. as they pass unchanged they may stimulate y. expectories & occasion a secretion of milk. but I imagine y. y. is injudiciously attempted by any thing but proper nourishment, & if this fails y. complaint lies too deep for any medicine to remove it by its stimulus. They have said to be diuretic & y. Daucus sylvestris or wild Carrot, has been employed for this purpose, but if it is even given in considerable quantity it does not show any diuretic virtues. It is alledged y. it pass off by y. Kidneys unchanged, wh. however I doubt very much, but granting it did, it is still only so weak a stimulus y. it can

hardly have this effect, especially in ye doses it is generally given. They may perhaps by yt antispasmodic virtues ~~prove useful in~~ remove ye symptoms owing to a gravel in ye Kidneys, as these may be considered as spasmodic affections. The umbelliferous Seeds have also been ~~use~~ esteemed as pectorals. I have already shown yt they can hardly be considered as diuretics, & I think they ~~are~~ less pectorals. But granting they would increase ye secretion of Mucus in ye bronchia, ye mischief they would do in inflammatory cases by ye stimulant quality they possess for ye essential oil they contain would not be compensated by ye evacuant virtue. Several of this tribe have been called emmenagogues; they may in ye same manner as Verticillata be accidentally useful by ye powers of antispasmodics. These seeds have been divided into ye calida majora & minora; but wo. very little judgment. The Foeniculum, wo. is one of ye mildest is ranked amongst ye majores; ye Daucus carota, the one of ye most acrid, is placed among ye minores. Their various degrees of acrimony has not yet been ascertained; but it is not difficult to do it from ye taste & ye quantity & ye acrimony of ye essential oil.

3. Siliquosa

This is another natural order & wo. out any ~~of~~ they are entirely in qualities & in virtues, & indeed more so than any other natural order, for I know no exceptions of any kind. They are all substances ye possess an acrimony & are therefore very properly ranked under ye class of stimulants; but this acrimony is in so small a quantity as to be easily dissipated by boiling; for wo. reason many of them are employed in Diet & wo. great

proprietys especially in y. northern climates where they afford a good Bond. to y. ord. food, by promoting those secretions wch. take off y. alkaline part of our blood. Employed as med. they act suddenly & powerfully & y. stimulus is quickly propagated & diffused, so y. they are useful in all those cases where y. motion of y. nervous power is languid weak or obstructed as in paralytic cases, where I know of no stimulus that is attended wth. better effects than a little mustard. Habit wears off these effects & it freqly happens y. if horseradish is substituted for mustard it succeeds after y. mustard has failed. If they are used internally for any length of time y. effects become very trifling by habit. They are used wth. better effects externally, as we can increase y. power by increasing y. surface to wch. they are applied; but it is difficult to reduce them to a powder & preserve y. virtues. They have likewise another inconvenience, for if they are kept long to y. skin they are apt to inflame it, wch. we should industriously avoid, for in this case they are less useful. We shall have occasion to speak of them under ye head of Rubrahentia. They prove particular or specific Stimuli, not from any specific virtue, but according to y. place to wch. they are applied. Thus in y. stomach, whilst they act as promoting digestion in general as a carminative & digestive condition, if they are given in large doses they will prove emetic. Accordingly Mustard & Horseradish are employed as gentle emetics, as they are thrown up again at once & do not continue y. effects. When y. stomach is once set in motion y. vomiting if y. be found necessary, may be continued by re

heated draughts of warm ∇, or wd. some of them stimuli in it. The best method of exhibiting mustard as an emetic is to give a table spoonful of it at first dissolved in a ~~little~~ pint of warm ∇ & afterwards to add a little mustard to every subsequent draught. Others are fond of Horseradish in a strong infusion of wh. a spoonfull is given in warm ∇. In my opinion ye. Mustard is preferable to ye. Horseradish; for as this is very volatile it loses its virtues if kept any time, & even in infusion it is liable to ye. same inconvenience except it is made in a very close vessel; & ye. infusion cannot produce ye. intended effects unless repeated draughts are taken of it. If ye. ~~emetic~~ mustard they do not prove emetic they are carried into Intestines, wh. they stimulate & promote ye. evacuation by stool. The Mustard seed is given whole or entire, when we intend it to prove a purgative, to ye. quantity of a table spoonfull. If we were to give only ℥j. in powder it would prove an emetic, whereas I have ordered ℥ij table spoonfull a day, wh. is equal to 2 Ounces, & it they never occasioned any sickness at ye. stomach. Mustard given in this manner seldom fails to move ye. belly & answers very well to keep a costive habit regular. It is difficult to explain its manner of operation in this case. We can only suppose ye. it is not extracted in sufficient quantity in ye. stomach to act as an emetic, but is carried into ye. Intestines & by ye. quantity & irritating solution stimulates them to discharge ye. Contents. It may upon ye. same footing go farther into ye. System before it ~~has exerted~~ exerts any stimulus to throw it out of ye. body. If it be given entire in such quantities ~~or rather~~ to vomit or to purge it will enter into ye. bloodvessels, & arriving at ye. kidneys prove diuretic.

All diuretics may by proper management be rendered diaphoretic. If y. body is kept warm y. med. go off by y. skin, if y. body is cool an increase of Urine is effected & y. medicine is determined to act upon y. kidneys. In y. manner some of y. Siliqueosa have been employed as sudorific & Mustard whey has been given for this purpose. In this case its effects are to applaied from its general stimulus, & y. warmth of y. whey w. is joined w. it, besides a diaphoretic regimen. All y. Siliqueosa agree in these general properties. In consequence of y. diuretic & diaphoretic powers & y. promoting y. excretions of y. acrid parts of our blood y. Siliqueosa have generally & not improperly got y. title of antiscorbutics, w. every medicine is supposed to be y. promoter Urine & has no considerable heating quality. The cure of y. Scurvy depends on throwing in a large quantity of vegetable alim.t. As these plants then are used in food, as they can be taken in considerable quantity & as they are likewise useful as remedies, they are w. out doubt peculiarly adapted for this intention. They are also called pectoral, & probably not w. out reason, as they are both diuretic & diaphoretic. There seems to be something in common w. y. surface of y. lungs & skin & Dr. Hales has shown y. a good deal of what is called insensible perspiration goes off by y. organ. As then y. kidneys have an intimate connexion w. y. surface of y. body & has y. again is connected w. y. lungs, it is probable y. med. w. stimulate y. kidneys & skin will likewise have an effect upon y. lungs & encrease y. secretion from ~~in~~ their surface. It seems they also have y. power of stimulating y. mucous glands of y. lungs, & by

this means become useful in diseases of ye breast. If they are applied externally to ye excretory ducts of these glands, they stimulate them & hence are often mentioned as curing Loaness. The Eruca & Erysimum (Rocket & Hedge mustard) are particularly famous for ye purpose if applied fresh. In producing ye effect they are said to add more than a natural clearness to ye voice whence one of them is by ye french called Herbe au Chantres. The mode of using them is to make them into a syrup, a small quantity of wch is laid on ye tongue & swallowed slowly, by wch means they come to be applied to ye mucous glands of the Trachea, from whence we may suppose ye action is extended to ye bronchia. These are virtues y^t are ~~experienced~~ confirmed by experience, but we need not confine ourselves to ye Erysimum or Eruca, for Horseradish may be employed wth ye same advantage. The particular species of ye order differ in degree i.e. in virtue in proportion as they have ye acrimony more or less in comparison to ye other parts. ~~wch regard to this~~ difference in degree, or wth are ye strongest, has not yet been properly determined by expts. I shall only observe y^t ye Mustard as a seed, ye Horseradish as a root & ye Scurvy grass as a herb are probably ye strongest of ye kind, & are those wch wch we are best acquainted.

The Siliquose have a bitterness owing to ye peculiar acrimony. Some of them are said to be astringent; the Burse pastoris is one of them, but this seems to be only from theory. Their virtue lie in common to ye whole plant & more equally diffused than in any other order y^t I know of. If there is any difference

to be made, I imagine ye strongest acrimony is lodged in ye seeds, ye next strongest is in ye roots & ye weakest in ye leaves. Hence ye last are ye most proper anticorbutics as they can be thrown in both as a food & as a medicine in ye greatest quantity.

The virtue of all these resides in a very volatile substance, for it is dissipated in drying. When ye plant is fresh ye vol. principle comes over from ye plant in distillation w. ∇. Hence it has been supposed to be of a saline nature; but from accurate experiments it appears ye it resides in an essential oil of ye peculiar property ye tho it be extremely volatile, it is specifically heavier than ∇. It must not only be stopped w. common stoppers but also be kept w. water underground. The oil containing an oil ye may be obtained by expression. This oil seems to be lodged in diffnt parts of ye seed; for ye expressed oil is quite bland —

As to ye exhibition of these substances they ought always to be given in substance, especially in ye Scurvy, in order ye we may give a veg. aliment along w. our medicine; for ye Scurvy is not to be cured w. out vegetables. The essential oils of these plants, tho they be diuretic, would not answer unless ye expressed oils were at ye same time joined, as they are in ye entire seed, to afford nourishment. & I am persuaded ye ye essential oil would never cure ye Scurvy tho it cause never so well extracted & procured. However if ye essential oil could be extracted at a moderate expence, or if ye plant would give a strong impregnation to ale it might serve for some purposes where these medns are found of service, especially in paralytic cases. But hitherto we have not discovered any other method of preserving these substances but by making them into a syrup, which not only answers in Hoarseness, but also in paralytic affections. In making this we should confine ourselves to ye seeds & roots of these plants. Horseradish is ye properest. We cannot extract ye juice by expression. We should take ye root quite fresh, scrape it down gently letting it fall into ∇, to prevent ye air from having any effect on it; then confine it in a close vessel & put it into a waterheat, & after

having kept it there for some time, take it out & express it; to ye Infusion we add a sufficient quantity of Sugar & commit it again to ye bath w. ye same precautions as before: after it has arrived at a due degree of consistence we should ~~cut~~ keep it in small Vials; that we may not have occasion to open them freely, & thus avoid ye bad effects of ye air on them —

6. Alliacea

These are of a very diff. natural order from ye former, I have set them down immediately after ye Siliquosa as they agree very much w. them in medical virtues & chemical qualities. There is even some resemblance in sensible qualities & one of ye Siliquosa is called Alliaria from its alliaceous or garlick odour. The Alliacea & Siliquosa likewise agree in having ye virtue residing in a volatile principle & in ye volatile principle being lodged in an essential oil w. sinks in ▽. The only difference is ye Alliacea contain more of a mucilaginous matter w. when ye acrimony is dissipated by boiling shews more of a nutritious & of a demulcent quality. Neither indeed is ye acrimony so volatile or so immediately active as ye of ye former Class nor so extensive in ye propagation of ye stimulus. Upon ye acc.t they are not so freqtly employed in paralytic, but they are equally efficacious as diuretics, diaphoretics & pectorals as ye former Class. They also prove emetic if they are prescribed in ye same manner for ye purpose as ye Siliquosa. If we intend ye they should enter ye mass of blood we must give them entire & in substance, & we ought only to dip ye Cloves of Garlic into oil & order them to be swallowed; for ye common garlic will seldom prove diuretic; sometimes indeed ye will prove pectoral, but never so considerable as when ye Garlic is swallowed whole. The Syrup of Garlic is ye only good preparation we have in ye Shops; ye directions for making this you will find in ye Lond: dispens. or Lewis. The Garlic acts in ye same manner as Mustard if applied

The tops have lately been introduced into Medicine & are freqtly employed in ye Diet Drinks ye are used as a cleanser of ye Blood. We should take ye shoots of one year when they are about half a finger long. They An infusion of them will prove diuretic & diaphoretic & expel ye degenerate parts of our blood, & thus prove useful in ye Scurvy & foulness of ye Skin. It matters little of wch. Sort we make use of, as they all agree in quality, & One will have ye same effects as any of them. The Wood & Berries of Juniper agree in Vertues wch. ye former, & are ~~made~~ used for ye same purposes. The rob of Juniper is a good diuretic & is sometimes used in dropsies, & indeed if we intend to give other diuretics in ye form of a Bolus or Electuary, ye Rob coincides in ye spec & is therefore ye properest.

Balsa. Copaiva, Peruvianum, Turpentine, canadense

externally, but its disagreeable odour prevents us from making use of it, tho it might be very properly applied to ye extremities in a low fever. The Garlic is not so liable to ulcerate ye part as mustard but is more apt to be absorbed & extend its effects to distant parts. It has been said by some ye it will prove a pectoral when it is applied externally, but this is only a supposition. — The plants of this order all agree in Virtue & differ only in degree. The Garlick is ye strongest, next is ye Onion & then ye Porrum. The latter has been supposed to contain a narcotic quality; I know there are some Instances ye seem to favour ye supposition, but on ye other hand there are also some ye flatly contradict it.

5. Coniferæ

The plants of this order agree both in ye external appearance & sensible qualities. This order at least contain five ye are officinal: The Fir, The Pine & ye Juniper. All of them yield ye peculiar kind of Resin my id. is by Mr. John Hoyer called ye terebinthinate; & ye Virtue seems to depend on ye Turpentine yt they contain. ✠

6 Balsamica

The title of Balsam has been applied to oily or resinous bodies of a middle consistence between oil & resin. They are in general obtained from ye coniferæ & all of them approach to ye nature of Turpentine. I am apt to imagine ye ye Virtues of Turpentine & the following Balsams are much in common. All of them have manifestly ye power of stimulating ye Intestines whether applied by way of Glyster, or taken by ye Mouth. Upon ye acct. ye provision Balsam has been applied in ye dry belly ache or Cholic poisoning. Turpentine you know is a common ingredient in our Glysters, & in my opinion it is one of ye best substances ye we can use for ye purpose. Wherever there is an obstinate costiveness

ness, Turpentine answers much better than Salt or saline matters; not y. it is a stronger stimulus, but because its effects are more durable & it remains longer in y. Intestines y. y. Salt, wd. is quickly thrown out by y. stimulus it occasions. The Turpentine is also much better than acid purgatives wd. often aggravate y. disease. This effect is not peculiar to y. turpentine, for we have it in greater perfection in y. Bals. Copaiva. Guaiacum has also been used as a purgative & I make no doubt but y. Bals. of Tolu & Gilead would act in y. same manner. All of them if they are carried into y. Mass of Blood, prove diuretic, diaphoretic & ~~[illegible]~~ pectoral, perhaps in y same manner as other stimulants stimulating y. operations. But we ~~perceive~~ observe y. diuretic effects more particularly, as we can perceive them passing off in substance by y. urinary passages. Turpentine & y. other balsams give what is called a violet odour to y. urine; & sometimes ~~this~~ odour is entirely terebinthinate. Fuller tells us y. Bals. copaiva impregnates y. urine wd. a bitter taste; but this has not been confirmed by any person who made proper experiments wd. it.

All these Balsams contain a saline matter wd. resembles very much y. acid wd. we obtain from Benzoin. We can sometimes perceive such a saline matter concreted in Turpentine & observe something resembling it in Canadian Balsam; some Authors say y. they have extracted it from Turpentine. It is possible y. y. diuretic virtues may depend on this Salt; for all of them contain a portion of it. They are almost universally recommended in y. nephritis; but I think it that use in this case is very ambiguous; for y. Nephritis is generally accompanied wd. inflammation, & this would be ~~rendered~~ aggravated by stimulants. For surely if sand or gravel is impacted in y. tubuli urinifer or Ureters wd. most antiphlogistics & relaxants, & y. use of stimulants

would not only be in proper, but highly dangerous, in these cases. The are
of stimulants in these cases proably being on an inflamation of y.
Neck of y. bladder. These balsams have been constantly supposed of
a dryeing nature & recomended in Gleets, & as they affect y. urinary
passages & y. parts contiguous to these in women, y. uterus, they
have also been recomended in y. fluor albus. Their uses in these cases
are confirmed by experience, but their manner of operation is difficult to acc. for. ~~is difficult~~ They
not act ~~by y~~ as astringents, for they prove no such quality. They are said
to have an agglutinant vertue & fix their cure in wounds & ulc
ers is explained. But they do not cure Wounds or Ulcers by any such
quality; but granting y. they did; yet we can never suppose them to
act in y. same manner in y. urinary passages; nay y. oil has
y. same property & other stimulants are found to have y. same
effects. We know y. Cantharides will ~~be~~ cure both y. fluor albus
& Gleets, & nothing but its very acid qualities & y. uncertainty of
its action upon diff. subjects hinders us from employing it more
freely in such cases. From these consideration I think it is
evident y. our balsams act in such cases by bringing an inflam
mation on y. lacunæ, thus inducing contraction & firmness.
We can illustrate this theory by several accidents as well as experts.
Persons have been cured of obstinate gleets by long Journeys &
riding Post. I have known Injections of Calomel applied in such
quantities & to produce such a degree of inflamation, y. it was
necessary to mitigate it by repeated bleedings; but they had y. effect
of curing y. Gleets. I have known Bloody urine to be y. conse
quence of using Corrosive Sublimate freely; but the patient was
cured of his Gleet by it. ~~Nearly~~ y. same Phenomena are observed
sometimes from y. use of Balsam. Copaiba. This should induce us
to act cautiously in giving these med. for we have it not in
our power to set limits to y. inflammation & to manage y. medicine
in such a manner as to be always sure of producing a certain

ence of inflammation.

The pectoral virtues of these balsams seems to be on ye same footing
w ye of the foregoing. In some Asthmas, without fever, where ye expection
of mucus is obstructed by ye spasmodic affections, we balsams may
restore ye expection by ye antispasmodic virtues. but we must not use them
promiscuously in disorders of ye breast. These & ye artificial Balsam
of Sulphur were formerly employed in all diseases of ye breast & even
in ulcerations of ye lungs; but they are now properly laid aside in
the disorders as they produce an inflammation, wch is very dangerous
in these ~~diseases~~ cases —

With regard to ye diaphoretic virtue, they have this in so far as they are
diuretic, to wit, by stimulating ye excretions; they seem however also
to prove diaphoretic by acting immediately on ye stomach. For
guaic sometimes proves diaphoretic before it enters ye intestines,
ye oil of turpentine does sometimes before it proves diuretic; but afterwards
acts on ye urinary passages. It seems ye on ye foundation of ye
diaphoretic virtues they are ~~given~~ prescribed for ye Sciatica; & Pitcairn
gave ye oil of turpentine successfully in these diseases at ℥ij & more for a dose.
It is very seldom however ye we can give it in so large a dose, on acct.
of ye heat & uneasiness wch it produces in ye stomach. Sometimes how-
ever if we give it even in small doses it will relieve ye disease; but
it often also has no effects in removing ye disease & presently excites
~~an~~ an inflammation. It is also on ye diaphoretic virtue ye Guaic,
wch has been used in ye rheumatism, & even has been thought a
specifick in this disease. It has also been recommended in ye dropsy,
wch, & it may be useful, when ye is no inflammation, but if ye
disease is inflamatory, it never fails to do harm, & we often find
it difficult to remove its bad effects. It is of service in ye chronic
rheumatism. It may also prove serviceable in gouty or arthritic
complaints by stimulating ye stomach, for every medicine ye only acts

so much of a stimulus as to strengthen y. tone of y. stomach, will be of use in these complaints. It is also said y. Guaic prevents y. appearance of y. Gout in y. extremities. I shall hereafter have occasion to say whether this should be attempted by Guaicum or any other medecine. There are y. Virtues w. these Balsams have in common w. each other. They have also some virtues peculiar to each, w. depend on y. quantity of essential oil w. they contain. The Bals: Copaiva has more oil in its composition & is more powerful than y. Turpentine. The other Balsams have not been properly examined yet. It may also suppose y. ~~odour~~ y. virtues of these Balsams may be varied by y. odour; but a very strong odour may reside in a very small quantity of matter. The Bals: de Mecca, or Gileadense has very surprizing virtues ascribed to it by y. eastern nations, & is a drug of immense value; but as I have had ~~occasion to speak~~ it make a trial of, I do not know on what foundation these virtues are ascribed to it. I can only say y. for its sensible qualities it would appear y. y. encomiums w. are bestowed on it are greatly exaggerated. And I for my part would give y. preference to those y. are cheaper & less liable to be adulterated. —

All of these Balsams are apt to remain long on y. stomach, & Turpentine sometimes stays on y. stomach for several days & occasions very troublesome symptoms. ~~The~~ In whatever manner they be divided, whether by y. yolk of Egg, or more elegantly by mucilage, they are soon collected & resist y. power of y. stomach. From this I should imagine y. we should get a better medecine by applying opinitiveness & nervine to Tritofoo, than by giving y. Balsams. We may employ y. Leaves & Tops of Fir & y. Berries of y. Juniper. Perhaps in some cases y. impregnation may not be strong enough; but there are certain agents y. show y. ~~the~~ Tea or Infusion of Juniper berries has cured a Gleet equally well as Bals: Copaiva. They grow

in greatest perfection in y. hot climates, Italy &c. Geoffroy assures us
y. they will occasion bloody urine; this should put us upon our guard
how we use them even in their mildest state. Hoffman gives a great
character to y. residuum remaining after y. Infusion of Juniper
berries, for strengthening y. tone of y. viscera & of y. stomach in part
ticular. He speaks of it as an astringent; but I do not find y.
it possesses any astringency nor y. virtues he attributes to it.
The Guaiac answers as well as any of these Balsams & is of more
convenient exhibition. Perhaps y. friable balsam of Tolu would have y.
same advantages, but it has ~~not yet~~ hitherto not been employed for
these purposes. —

Next in order are: y. Myrrh & Liquid Storax.
I am uncertain whether that spirit such an exudation in nature as
we have ~~in~~ y Shops under y. name of liquid Storax. It is very evid.
y. what is kept in y. Shops under y. name, is an artificial
substance, & Hayman tells us y. he knew a Man at Berlin who
manufactured it in considerable quantity. Its sensible qualities
give us no reason to give it any preference to y. other Balsams.
The Myrrh has been of long & frequ. use; but its peculiar vir-
tues are by no means ascertained. It has been commonly, but
improperly ranked w. y. fœtid Gums; for it differs from them in
its sensible qualities. It ~~comes~~ approaches nearer in affinity
to our balsams by its taste, by its resinous & oily nature, & here
I have classed it w. them.
As it is an acrid substance it stimulates y. intestines & may thus
by being joined w. Aloes encrease y. purgative virtues of it.
From some Experts y. were made to ascertain y. virtues of this
medicine it appeared y. Tho heated y. stomach, produced fever

It has been long disputed what substance myrrh was & what vegetable afo
it. It seems to be ye exudation of some veg: wh: is collected by Ince
almost in ye manner ye Bees collect Wax, & is loaded up in ye bolls
Trunks of trees in those small grains in wh: obtain it

agreed wth. y^e. Balsams in affecting y^e. urinary passages. It is generally joined wth. y^e. fetid gums on a supposition y^t. it encreases y^e. menstrual flux; but it has ye virtue only in common wth. other stimulants; & it does not act like Aloes, by purifying y^e. blood.

I am next to speak of some Woods y^t. are employed in Medicine, & I have placed the following together, not for any relation or affinity they bear to each other, but because they are generally employed for y^e. same intention & frequently enter y^e. same composition

Guaicum

This wood certainly contains in its substance all y^e. virtues of y^e. Gum, but then they cannot be extracted from it but by a spirituous Menstruum. Its addition to y^e. ℞. Senna compo: is considered as a considerable improvement to y^e. medicine, by Dr Lewis. He says y^t. ℥ij of Senna infused in ℥viij of decoct. of Guaicum will work as briskly as ℥iij in simple ♁. The fact is certain, but then it is owing to y^e. quantity of y^e. Menstruum; for I have known ℥iij of y^e. Decoction of Guaicum given wth. out any purgative effect following it. I say it is owing merely to y^e. quantity of y^e. Menstruum, for ℥ij of Senna infused in ℥viij of simple Water will purge as briskly as ℥iij infused only in ℥iv of Water. The decoction of y^e. Wood is a Medicine of little efficacy & perhaps entirely insignificant. The Virtues of these woods reside in an essential oil, wch. cannot be extracted by moderate boiling or a small quantity of Menstruum; if the menstruum & boiling are encreased y^e. essential oil is dissipated in proportion as y^e. quantity extracted is encreased. And I do not believe y^t. there ever was a cure performed merely by

When it was first brought into Europe it was esteemed a certain cure for ye venereal Disease & was made use of in ye following manner. ℥viij of ye Wood were macerated in ℔viij of Water for 12 hours & then boiled to untill half of ye Water was consumed. The patient was confined to a warm room, & drank several times a day a sufficient quantity of this decoction sufficiently warmed in bed & covered himself well up so as to excite a sweat. He was to continue this for 24 Days; living on a very spare & thin diet, & drinking nothing but a weak decoction of ye Wood. By this he was quite emaciated & ye disease perfectly cured. The Guaiacum seems to have contributed least to ye cure, & warm & would have had ye same effects: The Natives at this day cure ye venereal Disease by warm Water & ye above sweating regimen

The exhalations of ye tree have a very singular effect on ye human body. Those therefore yt cut the trees down always place themselves to windward of it, that ye Wind may carry off ye exhalations from them. If they do not use this precaution they are seized w. a fever & delirium & constantly make ye motions as if they were cutting down Trees; & are guilty of many other extravagancies. The Wood loses ye quality entirely by age

this decoction. It has been reckoned specific in ye venereal cases, but it is only efficacious in these in so far as it is joined wth a sweating & emaciating course, by wch means ye fluids are changed, especially ye oil of ye body in wch Boerhave supposes ye ye venereal poyson is lodged. But tho I think Boerhave in an error wth respect to his theory, yet I am convinced ye ~~it is~~ ye emaciating course has ye sole effect in ye cure & ye Decoct: of Bardana would answer equally well as ye of Guaicum

Sassafras. This is commonly joined wth ye Guaicum & for ye reason I have placed it here, tho it is a substance of very diffnt sensible qualities & instead of a thin essential oil affords one of ye greatest specific gravity we know. As it differs then in its sensible qualities & likewise in Chap, we must suppose it a diffnt medicine. With regard to its use we make ye observation, ye whenever we borrow sight of stimulants promoting a certain evacuation we must be very doubtful as to their effects; nay stimulating ye system in general may have very bad consequences. There is no doubt but ye Sassafras is a sudorific, & to this I confine its use —

Santalum Citrinum Yellow Saunders. This wood is at present hardly known in practice. It affords an oil like ye of Sassafras wch may be extracted by solution or distillation. It is however a substance of little use & properly neglected in practice. ✠

The following substances have no proper relation to ye woods or affinity wth them, but as they have been also employed in venereal cases they are set down along wth them

Radix China

This had formerly some reputation in venl cases, but as we have it in our shops it is hardly possessed of any sensible qualities & I imagine ye it with some reason banished ye present practice. But you are

to observe however ye it is of ye same genus wch ye Sarsaparilla, wch also has little or no sensible qualities, so ye if it is found ye ye one possesses any virtues, it is very probable ye ye other is not without them

Sarsaparilla

This has scarce any sensible qualities, & those ye it has are not obtained but by long coction; if we were therefore to follow our course of reasoning we should expunge it. But as it is a remedy ye has considerable virtues ascribed it, we shall enquire into ye foundation of those virtues, & ye facts ye are brought in support of them. Some years ago it was looked upon as insignificant; but ye Physicians of Lisbon having lately ~~done~~ brought a medicine into great reputate wch is known by ye name of ye Lisbon Diet drink, there were many conjectures made about its composition & among other things it was supposed to be nothing else but a decoction of Sarsaparilla; this therefore came again into practice wch ye reputation of curing venereal cases when ye failed. Fordyce, in ye London medical Essays gives us several cases in wch it appears ye Sarsaparilla ~~was~~ did considerable service. But not being able to explain its virtues from ye sensible qualities ought to have no weight when undoubted facts are produced in testimony of its virtues; from ye cases mentioned by Fordyce it is plain ye Sarsaparilla may be of service in venereal complaints. He tells us at what particular period ye remedy should be employed. By wch we find ye none of ye cases when Sarsaparilla was attended wch success were recent venereal complaints: it seemed necessary ye ye should have proceeded its exhibition ye ye in considerable quantity; so ye its use seemed chiefly confined to such cases in wch ye had failed. It seldom, if ever, happens in ye Country ye we meet wch venereal cases ye resist ye power of mercury; there may however be

It does ast however appear y. y. Lisbon Diet drink is a decoction of Sarsaparilla. I have undoubted proofs y. y. Lisbon drink has cured Patients when every other medicine had failed, & this drink seems to be almost a general & specifick remedy for all kinds of venereal complaints. It is only in y. hands of one person in London y. I know of, whose Name is Kennedy; it is therefore also known under y. name of Kennedys decoction. Several other substances have been tried & said to be y. same ch. entered into Kennedys decoction. The one ch. has had y. best success & ch. has been tried very fairly in St. Thomas's Hospital in London & y. ed. Infirmary is y. Cort. Mezereum, or spurge ~~Laurel~~ olive. It does ast grow naturally in y. Country, but is kept in Gardens. It has been very successful in removing exostoses, for ch. we are often obliged to exfoliate by y. Knife. They used it in y. following manner: Take of Mezereum & liquorice of each ℥ij slice them & boyl them in ℔ij of Water, untill ℔j is consumed. This is to be taken ch. in 24 hours, & y. patient is to continue for 6 Weeks; in ch. time he was generally cured.

such cases y. exist &, & this may be owing either to y. improper management & perhaps y. bad effects of &, or also to y. inveterancy of y. disease. The Sarsaparilla is chiefly commended in pains of y. bones under these circumstances, whether these pains be owing to cold or other causes, provided they be really venereal. If on giving y. Sarsaparilla we find y. it procures rest & sleep to a person who had been for some time without it, we may be assured y. its use will be attended w. good success. But if it should fail we should ascribe it to y. badness of y. Sarsaparilla or to y. inaccurate position. I think y. y. former is very frequently y. case, for we seldom find it possessed of any qualities, & what we generally have in y. shops is insipid & inert. Sarsaparilla is also recommended in cutaneous affections from a venereal taint. If we prescribe it we should order a very strong infusion. The decoction becomes sooner acid than y. of any other drug cost —

Contrayerva.

This is y. root of a plant that has some, but no considerable acrimony, & a little but no peculiar odour. It may therefore be supposed diaphoretic or what is generally said alexipharmac. It is used in malignant nervous low fevers to support y. vis vitæ & promote sweat. It is very difficult to ascertain y. use of acrid med. in fevers or to know at what time they should be given; nor are we likely to get a proper knowledge of this untill we become better acquainted w. y. theory & causes of fever. If we consider a fever wholly as an encreased motion of y. fluids we cannot have any foundation for y. use, unless we allow y. y. nervous power is at y. same time considerably weakened. We may get over y. difficulty by saying y. y. med. do not act as stimulants, but as antispasmodics. But this does not solve y. question for tho most of them are antispasmodics, yet they are not all so, & there are often cases when stimulants are indicated in fevers,

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but I shall treat of this in a more proper place. I imagine y. c. regard to y. contrayerva & y. quantity in w. employ it, viz. in 3 gr. it is only a placebo & attended w. no effects at all. Dr. Pringle has of late introduced a new consideration of fevers & y. exhibition of Antiseptics. I do not know but what it is well founded, but unless we give y. contrayerva in larger doses we cannot expect any antiseptic virtues from it.

I am next to speak of those stimulants y. agree in sensible qualities. & 1. Of Aromatics.

We call those Med. Aromatics y. have a pungent acrid taste joined to a fragrant odour y. makes them very agreeable to our Organs of Smell & Taste. They all abound in an essential oil, w. in y. proper aromatics, is specifically heavier than ∇, and they are in general y. produce of y. torrid Zone. They have a great affinity in their virtues: they stimulate y. stomach, assist digestion & increase appetite; they take off y. spasm in y. Intestines by giving a stronger action to y. stomach: they take off spasms arising from acf: Alim: & are in general useful in all spasmodic affections of y. alimentary Canal, unless there be attended w. Inflamation. They seem however rather calculated to relieve y. spasm when present than to obviate it. Nothing is more common than to give aromatics w. purgatives y. are liable to produce spasms; they do not however always prevent us from them. Aromatics are also used in cold diseases of y. head & brain, in all languors of y. System & in short for all those purposes when Stimulants may be useful. All of them are of an inflamatory nature: for their virtue depends on an essential oil, & they are apt to inflame y. parts w. they are applied. This effects is most remarkable in those aromatics that have y. oil in y. greatest quantity & of y. most acrid kind.

They have been used for y. cure of Intermittents, & given just before y. fit is expected in order to prevent its coming on; but by y. practice we run y. risk

Cinnamon is ye most agreeable of all ye aromatics on acct of its grateful odour. It is ye best cordial & stimulant ye can be taken; a drop of ye oil will almost preserve Life in Weakness & Languor. This plant or Shrub grows only in perfection in Ceylan, from whence it is brought to Holland; if it at any time happens ye too great a quantity is imported, ye dutch east india company burn ye superfluous, in order to keep up ye price of this valuable drug. The oil or an infusion of Cinnamon is very useful in those Languors & weakness yt often are ye consequence of an autumnal Intermittent. If we add Cinnamon to any decoction in order to render it agreeable we should always, put it in at ye close of ye process, otherwise ye fragrancy & essential oil will evaporate; but if we add it to ye astringent decoctions &c. an intention ye it shall act as an astringent; the longer we boil, ye greater effect will it have. It is frequently added to purgatives to prevent ye spasms ye generally attend these med. e.g. to an Infusion of Senna. We also add it to Rhubarb in order to encrease ye purgative virtues of ye drug. It is one of ye safest & most grateful stimulants to give in Women when they are so low & weak as to require med. of this kind.

Cloves are more acid & therefore more stimulating than Cinnamon. We sometimes add ye oil of Cloves to our stimulating med; but it is best not to be too free in its use. A drop of ye oil is also freqly made use of in ye toothach proceeding from a hollow tooth; in wch case it acts by destroying ye sensibility of ye nerve.

Nutmegs are ye fruit of a tree ye grows in ye eastindies almost in ye manner of our Hickory nuts. It is said ye ye dutch macerate them in Lime water in order to prevent their germinating if they

of changing an Intermitt.! into a continued fever. Many Intermittents are of an inflammatory nature; but especially those y. occur in y. Spring of y. year & in these Aromatics would be improper. These are y. general Virtues of Aromatics.

The Cinnamon, Clove, Nutmeg, Mace, Allspice or Piments are y. most proper Aromatics, most agreeable & most used in food. The Canell: alb: Cort: Winteranus & Ginger are of an inferior degree of fragrancy; but they are still entitled to be ranked w.th y. others. The Pepper & Spanish or Guinea Pepper have little odour but have y. most poignant taste & are y. most powerful Stimulants, w.h is a proof y. 1st proxy odour does not always imply considerable virtues: on acc.t of y. want of odour they are preferable in food to most others. The essential oil of these two kinds of pepper is milder than y. pepper; w.h shows y. ~~whole~~ y. Virtues do not always reside in y. essential oil; w.h is often so heavy & sometimes so fixed as not to rise by distillation. Alkohol is a better Menstruum for substances of y. kind. Pepper in y. same manner as Mustard, can be taken int. a time y. quantity whole & in substance, than if it is taken in powder, without producing a greater degree of heat. In Intermittents, in w.h Pepper is commonly & sometimes taken, this is y. proper method exhibition; for in this case y. stomach does not extract such a quantity at a time as to produce inflammation —

The rad: Galanga, Galangale, were introduced into medicine, when we were in y. humour of introducing every exotic medicine. It is neither agreeable by its odour or taste & is y. weakest of y. class; & therefore now properly rejected —

Zedoary has a penetrating odour like y. of Camphire & it is said y. it affords a concretion w.h is much of y. same nature & therefore has probably antispasmodic virtues; but I know y. were any proper experiments were instituted w.h it —

Serpentaria virginiana. Virginia Snakeroot. This contains an

were put into y. ground. They contain somewhat more of an astrin-
gency than y. other aromatics & are therefore freely made use of
in Dysenteries & diarrhoeas; where by y. moderate stimulus & astrin-
gency they strengthen y. tone of y. Stomach & Bowels. The Mace
is of y. same Virtues as y. Nutmeg, & indeed ~~of~~ a production of
y. same tree: it grows round y. Nutmeg in y. manner of a
Net work. —— The Allspice or Pimento seems to participate
somewhat of each of y. other Aromatics: we do not however make
any use of it in Medicine ——

Pepper is also a production of y. E Indies. It is said y. pepper
dered will excite a hiccup; wh. is the only plant or veg: I know
y. has this effect. Pepper is often made use of by y. Country peo-
ple to prevent y. cold fit of an Intermittent; they take near a
spoonfull of y. grains about ½ an hour before y. fit is expected
& by this means often prevent; but if it fails of success, they pay
for it during y. hot fit. It is an ambiguous & dangerous rem-

acrid essential oil, & is therefore possessed of ye. virtues of ye. Aromatics. In its odour it approaches nearly to ye. valerian. It is less agreeable to our organs of taste & smell than most of ye. other Aromatics. It is almost ye. only one of this class ye. we make use of in continual fevers & it is greatly attended w. very good effects in these lowness, vous fever, raising ye. pulse, diminishing its frequency & bringing ye. fever to a happy Issue. It is certainly preferable to ye. Contrayerva, w. is also employed in these Diseases. We call those fevers low & nervous in w. there is always a Langour of ye. Vis Vita & nervous power. When this proceeds to a higher degree & is accompanied w. putrescency we call ye. disease then a malignant fever. In the malignant fever it is often attended w. evident uselessness; but in ye. beginning of nervous fevers, where there is no manifest tendency putrefaction, it is often attended w. pernicious consequences. Dr. Pringle has been attentive to malignant fevers & deserves great praise for his observations on them, tho he is apt to suppose them often existing tho they really do. He was led to prescribe ye. Serpentaria from ye. notion he had formed of ye. Antiseptics. But tho he is prejudiced in favour of this medicine he is obliged to caution us w. regard to its use & says ye. he was obliged to diminish ye. dose on acct. of ye. heating effects of ye. remedy. We are not always to judge of ye. degree of heat by ye. temperature of ye. skin; but we should also be attentive to ye. frequency of pulse.

The Malabathrum, Nardus, Balsamita & Costus contain indeed somewhat of Aroma, but ye. is so weak ye. they neither deserve nor have they obtained reputation.

Lilium Convallium. This is an Instance of odour being introducing a substance into medicine, & improperly. Tho it is agreeable & pregnant to ye. Smell, yet it is an acrid & even poysonous substance, & as its odour does not furnish it w. any virtues, it is to be avoided.

The Ginseng y. grows in y. Country is entirely ye same species w. y. w. grows in Tartary & for lb. y. Chinese give triple y. weight in silver. i. e. for 8 j. of y. Root they give 8 iij Silver. The Ginseng was some years ago a considerable article of Commerce, & fetched a very high price in China; but when it was carried there by Jesuits y. Chinese suspected there was some fraud, & at present value none but what they are sure comes from Tartary.

Degner, one of y. best Writers on y. Dysentery, commends this Root in y. Dysentery, & indeed it seems very well calculated for Diseases of this kind & ~~and~~ also for all putrid disorders. You can see y. history & its uses in Lewis's Dispensatory.

Ginseng. This, like the substances y. come into common use, has had great virtues ascribed to it, especially in those countries where it is generally made use of. It is a mild aromatic & a safe masticatory, & may therefore be serviceable to those who require such amusement; but y. weakness of its sensible qualities gives it no foundation for a place in medicine. The engaging virtue of a powerful incentive & aphrodisiac have been attributed to it, but on y. most slender & indeed absolutely false foundation. #

Cascarilla. This is but seldom made use of in Medicine in this Country & even in Britain, but it is in great Vogue in Germany & y. other Countrys in Europe. It belongs to a set of plants y. contain an acid & somewhat of a poysonous Nature. Its oil is very inflamatory, irritating & heating to y. system & thus producing sweat. It has somewhat of a narcotic power, & as a bark, is manifestly astringent. It has been much commended in malignant fevers. Hoffman & Stahl commended it greatly in intermittent fevers, but in these it is by no means equal to y. Peruvian bark, wch. Stahl never made use of in these cases, as it was inconsistent wch. his Theory. From its astringent & narcotic qualities it may be useful in those diseases for wch. the French Physicians employ it. Stahl also recommends it in a peripneumony & diseases of y. breast; but he excepts y. Angina, & y. makes me suspect y. it should not be employed in any inflammatory disease. #

Asphalathus & Rhodium. These woods have a fragrant odour, & recommend themselves by its gratefulness; but they do not appear to have any great Virtues; they have indeed never been spoke of as possessing any but y. of Cordial. They seem to be much better adapted for y. purposes of y. perfumer than of y. Physician.

The 3 following Gums could not have been ranked w.th any we know except y.e Balsams, y.e I spoke of before & to w.h they seem to bear an affinity. Benzoin & Storax are remarkable for giving out a saline substance of y.e acid kind in a dry form under y.e name of flowers. These saline volatile acids are very easily found in y.e balsams & no where else y.t I know of. I told you before y.t y.e Bals. of Peru was said to afford it in considerable quantity & y.t it was also found in Turpentine. This saline substance, present in our Gums, is joined w.th a ~~saline~~ resinous matter of ~~considerable~~ remarkable acrimony. The same virtues have been ascribed to y.e flowers & y.e Gums, w.h indeed makes me do very uncertain what I should say of them, for I cannot conceive how substances so diff.t in appearance & quality should still retain y.e same virtues. They are said to be pectoral. But I know y.t they have been given w.out manifesting any antispasmodic virtue, or promoting expectoration. We ought in general to be very cautious how we exhibit stimulating med.s in pectoral complaints. They are not so much employed in present practice as they were formerly & this is y.e reason y.t their virtues are not well ascertained; but it is no reason y.t they do not contain any at all. But granting they were efficacious remedies; they can still have only trifling effects in y.e dose in w.h they are generally employed; for y.e largest dose y.t is almost ever given is gr.x, & yet I have known them given in double y.e quantity & no sensible effects could be perceived.

The Labdanum is perhaps not so properly ranked w.th y.e former. It is employed chiefly in plaisters, & may as well as y.e other warm Gums contribute its share in stimulating.

We next come to a set of Med.s y.t are generally employed in Medicine, but whose effects on y.e System are not only difficult to explain, but little known to many Practitioners.

This term is to be considered as very general & running through a great part of ye. Mat: Med. The Amara however are seldom simple, but combined w.th other qualities, astringency, acrimony, aroma &c. When I speak of Bitters I mean pure bitters such as we have in Gentian, Bile &c. But this applys only to few & therefore I shall also comprehend under ye. class such substances in wh. ye. Bitterness evidently predominates. With regard to all these plants it is to be observed ye. a certain degree of stimulus is to be perceived in them, wh. depends on an essential oil ye. is present in greater or smaller quantity, & gives ye. diversity to bitters. More or less of Astringency is generally joined w.th bitterness, but it cannot be separated from it, & is discoverable only by striking a black colour w.th a solution of green Vitriol. It is commonly said ye. Bitters afford more fixed alkali than other vegetables, & this is really found to be true by experiments accurately made for ye. purpose; but it is very uncertain what we are to conclude from this: the Chemists imagine ye. those plants contain this alkali in ye. same manner in ye. natural state & ye. some of their action depends on this; but this is an error; & the bitters check fermentation yet it quite in a diff.t manner ye. alkalis do by destroying ye. acid.

The general Virtues of Bitters.

All of them are more or less stimulating & strengthening, & hence are supposed to promote appetite & assist digestion. In ye. Stomach they check fermentation of all kinds, on ye. one hand preventing a noxious acid & on ye. other resisting putrefaction. It is very probable ye. ye. assisting digestion depends as much on ye. resisting putrefaction, as on ye. stimulant quality, for many substances ye. are evidently stronger stimulants, have not ye. effect. Many bitters excite Vomiting, they have therefore been supposed

to contain an emetic quality; but it is evident they contain no such power; for ~~a slight infusion~~ when taken in warm tho they are universally nauseous yet they will rather expede than promote vomiting; & if a slight infusion be equally nauseous it will be as effectual as a strong one, & if bitters are given in powder, so as to pass y. fauces w.out being tasted, they have no such property. Their stimulating y. Intestines has a better ~~more~~ foundation. They resemble ~~have~~ y. Bile of Animals in y. Taste, & they promote y. peristaltic motion nearly in y. same manner as Bile. I have known indeed Chamomile flowers given for y. cure of Intermittents in y. dose of ℥j w.out proving purgative, but this is a rare Instance & in general they purge if given in y. dose. They have also been reckoned Antheln mintics. ~~All~~ Most Animals seem to show an aversion to bitter substances & there are instances of Insects avoiding y. odour; this may perhaps also be y. case w.th Worms, & I make no doubt y. if Worms swallow them, it will destroy them, as bitters are of a poysonous quality; but where do we find y. animals will ever take substances y. prove destructive to them. Bitters therefore are now found to be trifling remedies for this purpose; Physicians however still order them on a supposition y. they act by strengthening y. Tone of y. Intestines & shaking off y. mucus in w.ch the Worms are nested. This however is only a surmise & not proved by any appearance.

The effects of Bitters in y. Mass of blood.

Bitters sometimes pass off by urine, in some cases impregnating it w.th colour & smell & in others changing y. condition of it. Bitters have been recommended in y. Jaundice. I formerly told you that y. Medicines recommended for y. cure of y. disease, were in general not successful. Bitters indeed will

seldom if ever cure ye Jaundice; but then they may relieve those symptoms
ye. arise from a want of ye. Gall in ye. Intestines, by supplying
in some measure ye. place of this; & it has even been observed ye.
they changed ye. colour, consistence & condition of ye. Urine in these
cases. As they promote ye. discharge of Urine, they have been used
in Dropsies. If they are given without any addition, their effects are
not very remarkable; but their diuretic virtue is much encreased
by ye. addition of alkaline Salts. It seems indeed ye. ye. Virtues
of both are encreased by ye addition; for neither ye. alkaline Salts
nor Bitters would have ye. same effects in a separate state,
as when they are united. They are also said to be diaphoretic & sudo-
rific; & if they are given in large doses under a proper regimen
they will excite a sweat, almost as soon as any remedy I know.
But it is still uncertain whether this is owing to ye. immediate
action on ye. Stomach, or by encreasing ye. secretion; It is however pro-
bable ye. it is owing to ye. action on ye. Stomach for ye. sudden effects
wch. follow ye. exhibition. In consequence of ye. being diaphoretics they are
recommended as alexipharmac in fevers; & they may be given wth. more
safety in these than ye. Stimulants I have already treated of, or ye. Serpentaria.
They have also, on acct. of ye. alexipharmac virtue, been supposed to
act as Deobstruents in all parts of ye. System, & therefore used in
rheumatic affections. They have been supposed to ly. by ye. stimu-
lating quality they promote ye. menstrual & hæmorrhoidal flux, &
Aloes has been adduced as a proof of this; but whatever virtue Bitters
possess in these cases, they still are diff. & far short of Aloes, for in this
ye. Bitter is joined wth. a subtile purgative quality. If the Bitters
be given in large doses in hæmorrhoidal cases they may do some service.
They are of as use as Emmenagogues in ye. doses ye. two generally give them

As strengthening y. System they have been used in y. cure of Intermittents; in wh. they are often found effectual; but they are not near so powerful as y. peruvian Bark.

They have also been employed in continued fevers; but it is a difficult matter to determine at wh. period of y. disease they should be given; for it is not safe to give them in every stage of a fever. They have been supposed to remove obstructions in y. abdominal viscera by some specifick quality, & hence have been called Hepatics & Splenetics. But this specifick determination to these parts seems to have but a weak foundation; tho I do not deny that they remove obstructions in y. Liver & Spleen, as well as in y. other abdominal viscera, & they may therefore be of service in cachectical cases. The peruvian Bark has been found serviceable in y. Scrophula, we may therefore fm analogy conclude y. Bitters may also be useful in this complaint. Bitters have been recommended as a Cure for y. Gout. It is not many years since y. a Medicine was introduced into England under y. name of y. Duke of Portlands powder. The Duke had been cured of y. Gout by this remedy, & from a publick spirit he printed y. Recipe & directions how to use it, wh. y. proper regimen; & ordered these printed Bills to be ~~distrib~~ given gratis to every person y. asked for them. This powder is composed of Aristolochia & other bitters; for I consider y. Aristolochia as a bitter, tho from its fetid odour it is transferred to another class. This powder prevented y. painful return of y. Gout in Inflamations of y. extremities, in y. Duke of Portland & many others who tried it, & they seemed to cure y. disease, but it was almost always attended wh. a considerable change in y. system & pernicious consequences. Dr. Cullen in his course of Materia Medica wh. he gave, speaks of it in y. manner: I may venture to say y. not 90 of 100 who have taken y. remedy, but have in a year or two after y. been carried off

by ye Apoplexy or some other mortal disease. In Scotland I know only of 10 or 12 who have made use of this powder; & in every one of them it ended fatally. — It is necessary to continue ye use of ye medicine for 2 Years if ye cure is to be effectual. Many who made trial of it had not so patience enough to go through ye course & wh. them ye medicine has neither been effectual in curing ye gout; nor was it attended wh. ye bad consequences just mentioned. Dr. Cullen says ye he knows this from his own Observations ye he made on this subject. For ye history of ye medicine you may consult a paper of Dr. Clephane in ye London medical essays, in wh. he shewetth ye this remedy has been taken notice of by every practical physician since ye time of Galen. Some It did indeed undergo several alterations during ye Period; but this never went further than substituting one bitter for another so ye ye medicine was in reality still ye same. None however who ever treated on ye Subject omit giving a caution against ye promiscuous use of it. Dr. Gaubius, upon ye reputation wh. ye remedy obtained in England, also made trial of it; & agrees wh. what Dr. Cullen observed of ye effects of ye medicine. From this we see what a ye effects of a long & uninterrupted use of bitters on ye human body is however a difficult matter to account for ye manner in wh. these effects are produced. ~~Boerhaave has shewed ye ye~~ I have said above ye Stimulants in general destroy ye tone of ye stomach & Boerhaave tells us that he observed ye Aristolochia destroys ye tone of ye stomach, smooth ye internal surface of ye stomach & takes off its villous Coat. The Gout I said in a former Lecture, was sent to ye extremities if ye tone of ye stomach was increased; it is therefore a natural consequence ye when ye tone is diminished ye Gout will disappear in ye extremities. May we not therefore suppose ye ye arthritic matter only changes places, & instead of appearing

in ye feet, it is thrown upon ye brain & in a short time puts a period to ye Life of ye patient. These Considerations should put us upon our guard against ye too freq.t use of Bitters; & for ye effects ye Aristolochia has been found to have on ye stomach, we may judge ye other plants of ye same kind will have ye same effects. — Bitters have also been considered as Antinephritics, & in these cases they are supposed to act as diuretics. But I think ye they act much in ye same way as ye Astringents, wch have been commended in calculous complaints; for their diuretic effects are but very inconsiderable; & as to their changing ye figure of ye stone this has not even been hinted at. There seems to be some affinity between ye Arthritic & Nephritic. It is a general opinion ye ye nephritic fit is owing to ye size, weight & roughness of ye stone in ye Kidneys. If a person who has a nephritic paroxysm on him is seized wth ye Gout, he is almost instantaneously relieved from ye symptoms of ye Nephritis; if these symptoms had been owing to ye size of ye stone, how could it be possible ye an Inflamation of ye toe should take off these symptoms whilst ye stone still remained in ye same place, of ye same size & roughness. It is much more probable ye ye kidneys are previously affected & ye this affection of ye kidneys is in reality ye cause of ye ~~stone~~ concretion of ye stone; & not ye ye stone is ye cause of ye Nephritis; & that it is in ye case ye same as in ye Gout, wch causes ye chalky concretions. The Gout therefore by taking off this affection of ye Kidneys prevents ye bad consequences of it. I shall illustrate this by a remarkable ~~instance~~ case, in wch ye stone remained in ye kidneys but ye person was entirely relieved from ye nephritic symptoms by ye attack of ye Gout. A Gentleman long troubled wth nephritic complaints was seized wth an excessive strangury, fetid purulent urine & ulcers in ye whole tract of ye urinary passages, wch

hectic symptoms & other complaints y. made his case desperate, when he was unexpectedly seized w. y. Gout w. relieved all these nephritic complaints, his urine became less fatid, he made it freely; y. Gout lasted a fortnight during w. time he had not y. least attack of y. Nephritis. Another Person under a fit of y. Gout was seized w. a Nephritis, & as this encreased, the Gout diminished in proportion; he died of this new disorder; but upon dissection no stone was found in y. Kidneys. — This case seems to have been peculiarly adapted for y. trial. We have hitherto neglected y. antilithortic powers of Bitters, & tho they may be attended w. bad consequences in y. Gout, from y. long use we are obliged to make of them, yet it may still be worth trying them in nephritic cases, where perhaps they may not be attended w. these bad effects. From y. Cases also w. I mentioned we see what an intimate connection there is between y. Gout & Nephritis, & possibly this analogy may also extend to their method of cure; & tho it would be ridiculous to imagine y. Bitters had any power to dissolve y. stone; yet it would be equally ridiculous to deny they had any effects on y. kidneys. Bitters are alledged to have somewhat of a narcotic quality, especially those y. abound w. essential oil. This narcotic quality occurs in some degree in Wormwood; but then it is not owing to its bitter, but to y. peculiarity of its essential oil. Opium is also a bitter; but it would be ridiculous to ascribe its narcotic quality to its bitter taste. Bitters are said to weaken y. System in general, & particularly y. organs of generation. I cannot say wthe on what foundation; the truth must be determined by an expt w. every person would not choose I mean, to try them on himself. But I am more certain of y. bad effects on y. Eyes. It has been observed even from y. earliest times y. Wormwood, affects like Sage, y. eyes w. an uneasy dryness, contraction & inflamation attended w. headach. These effects seem to depend on y. narcotic quality, for they are confined to y. few y. abound in essential oil —

common Wormwood, Sea Wormwood. roman Wormwood
Absinthium vulgare, maritimum, pontticum, romanum
Abrotanum Southernwormwood. An Infusion of common worm
& fixed alkaline salts is greatly commended as a diuretic in hydr.
complaints. The roman Wormwood has not such a disagreable tas
as y. common, & also contains more of an aroma.

Carduus Benedictus. This promotes all y. functions in general if a
infusion is taken of it; but by macerating it in cold water it a
an agreable bitter ad. is of service in stomach complaints. It was
one of those med. y. were used for intermittents before y. Bark w
introduced